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Case of Canada

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DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

ABSTRACT

The concept of building defined approaches, models and frameworks for optimizing different projects that belong to the same portfolio is gaining more attention and emphasis from companies, especially the small and medium sized ones. Yet, many problems that lie into the existing frameworks are keeping those companies away from using it.

A sample of these SMEs that work in the field of construction and building materials in Canada were a filed for our research to better identify the issues in these existing frameworks, understand its influence and effect on companies and develop an ideal integrated framework that deals with project, portfolio and innovation management at the same time.

The data has led in this research to identify 5 major issues that needed to be embed into the new integrated approach that is called Innoframe. This is a new framework that is an outcome of a thorough study on the usage, behavior and prospects of two main levels of personnel which are team members and their project managers.

The study has followed a straightforward path in the sense of researching, analyzing and developing. The approach allowed the study to make good use of the literature and data collected on one hand, and to translate it into useful tools that help a lot in developing the new framework.

All in all, the study emphasized the three main phases mentioned previously to come up with a new integrated framework that can serve as a roadmap for SMEs in the industry of construction and building materials.

KEYWORDS: Framework, Innovation, Project Management, Portfolio Management.

RESUMO

O conceito de construir abordagens, modelos e *frameworks* definidos para otimizar diferentes projetos pertencentes ao mesmo portfólio está a ganhar mais atenção e ênfase por parte das empresas, especialmente as de pequeno e médio porte. No entanto, muitos problemas que se encontram nas estruturas existentes impedem que essas empresas o usem.

Uma amostra dessas PMEs que trabalham na área da construção e materiais de construção, no Canadá, foi usada na nossa investigação para melhor identificar os problemas existentes nesses *frameworks*, compreender sua influência e efeito sobre as empresas e desenvolver uma *framework* integrada ideal para lidar com gestão de projetos, portfólio e inovação ao mesmo tempo.

Os dados permitiram nesta investigação identificar 5 grandes questões que precisaram de ser incorporadas na nova abordagem integrada chamada Innoframe. Esta é uma nova *framework* resultante de um estudo aprofundado sobre o uso, comportamento e perspetivas de dois níveis principais de pessoal, que são membros da equipe e seus gestores de projeto.

O estudo seguiu um caminho lógico, passando pelas etapas pesquisar, analisar e desenvolver. A abordagem permitiu que o estudo fizesse bom uso da literatura e dos dados recolhidos, por um lado, e que se traduzisse em ferramentas úteis que ajudaram muito no desenvolvimento do novo *framework*.

Em suma, o estudo enfatizou as três principais fases mencionadas anteriormente para chegar a um novo *framework* integrado que pode servir como um roteiro para as PMEs na indústria de construção e materiais de construção.

PALAVRAS-CHAVE: *Framework*, Inovação, Gestão de projetos, Gestão de portfólio.

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SYMBOLS AND ACRONYMS

Symbol	Description
3D	3 Dimensions
ACCA	Accelerated Capital Cost Allowance
AT&T	American Telephone & Telegraph
BBC	British Broadcasting Corporation
BDC	Business Development Bank of Canada
BMCC	Building Material Council of Canada
CCA	Council of Canadian Academies
CEO	Chief Executive Officer
CETA	Comprehensive Economic and Trade Agreement
CHBA	Canadian Home Builders' Association
CME	Canadian Manufacturers and Exporters
CMHC	Canada Mortgage and Housing Corporation
OCoP	Online Communities of Practice
CSF	Critical Success Factor
EDC	Export Development Canada
EPMO	Enterprise Project Management Office
ERP	Enterprise Resource Planning
Etc.	Et cetera
EY	Ernst & Young
FROST	Focused, Regular, Open, Safe and Tangible
G7	Group of seven
GDP	Gross Domestic Product
GTA	Greater Toronto Area
HEC	École des Hautes Études Commerciales
HP	Hewlett Packard
HWP	Hedeman Weiferink Portman
iMac	Internet Macintosh
IMS	Integrated Management System

iPad	Internet Pad
iPhone	Internet Phone
IPM	Innovation Portfolio Management
IRAP	Industrial Research Assistance Program
IT	Information Technology
KPI	Key Performance Indicator
LEED	Local Economic and Employment Development
M&A	Merger andAcquisitions
Macbook	Macintosh book
MBA	Master of Business Administration
MEP	Manufacturing Extension Partnership
NRC	National Research Council
OD	Organizational Development department
OECD	Organization for Economic Co-operation and Development
PC	Personal Computer
PMBOK	Project Management Body of Knowledge
PMO	Project Management Office
R&D	Research and Development
SEAF	Small Enterprise Assistance Funds
SMEs	Small and Medium sized Enterprises
UNWE	University of National and World Economy
US	United States
WEF	World Economic Forum

1. INTRODUCTION

The very first words of this research come to introduce the whole study and reveal the foundations that represent the preliminary phases in which the study will navigate.

1.1. Background

Trending now, project, portfolio and innovation management are widely used terms to discuss companies' success and failure. However, there are more sophisticated methodologies that contribute to companies' strategies. Project management is the narrowest point to speak of. For a company to succeed, it must have a vision through defining its long-term goals and setting projects that meet it. "Modern portfolio management tells us the importance of simulating real securities, especially for fixed income and structured products, during the development of optimal portfolios, as well as the importance of simulating financial investments over time to match in a transparent way the actual goals and constraints instead of relying solely upon past performance or personal judgment" (Dutta, 2019, p. 4) . Things do not stop here, but rather start from an innovative model which is the broad key to foster this productivity. Often, innovation management is grouped together with another type of management entitled technology management (Igartua, Garrigós, & Hervas, 2010). This is because new technologies and technological developments are often the product of innovation processes (Igartua et al., 2010). To develop innovative technologies, strategic thinking, insight, and creativity are at the core, since employing these skills enables individuals to reveal new ideas and processes that can be improved (S. Erzurumlu, 2017). Globally, this framework is neglected in most SMEs (Small and Medium sized Enterprises) due to limited resources and overlapping roles. A good strategy lies in the integration between projects within a certain portfolio through an innovation-support model.

Project management has been there since human activity but without a clear definition. People had simple visions to support their needs and worked according to this. With the fast progress and the globalization that we have reached, needs have developed, therefore, complex strategies arouse to serve. It started with project management which is a simple definition for putting projects on track. We now find it widely spread among firms but not getting the maximum out of it due to the lack of its integration with other models. With time, the term portfolio management was introduced, in its beginnings, it was based on project selection, and then understanding it more and choosing the

appropriate projects that align with the company's goals. Also, innovation management was introduced to facilitate the strategies.

When the ice age started to end, wheat plantation has started and people started to settle, thus they discovered agriculture, from there the small project of village concept started, it was based on finding food and protection which was regulated by tribes, project managers in that time, through a social & economic system. Another dramatic change that occurred was the beginning of urban revolution and cities, around 5000 years ago, because of starting irrigation on river sides, thus, people started to build their homes to stay for long times. This caused the start of capitals, therefore a bigger competition occurred, starting portfolio management. The government system was created to provide safety and collect taxes to survive and grow. Later on, the industrial revolution came with many innovative ideas and needing more control with many people moving from rural areas to cities, which requires smart control over the empire that has occurred. We saw grand empires that died and others that grew fast and so big. This explains briefly how needs for complex systems were derived explaining that project, portfolio, and innovation management where there since ever controlling our lives. This will be discussed more in coming chapters.

We can now observe the complexity of each model as a whole science, and we can see, with time, scientists started to separate and study each alone. Henry Gantt might be the father of modern project management (Westland, 2018). In 1917, he created the eponymous scheduling diagram (Westland, 2018). He used a visual timeline to plot tasks as points with durations and linked them if they were dependent. That way, everyone could see the schedule more clearly (Westland, 2018). Managers do not offer portfolios that are optimal on their own; managers instead specialize in providing components of optimal portfolios if this is advantageous to investors (Asparouhova et al., 2015).

In the 1930s, before the advent of portfolio theory, people still had "portfolios". However, their perception of the portfolio was very different, as was the primary method of building one (Beattie, 2018). When examining management innovation, it is equally as important to study the context of its promotion and practice as its content. In doing so, we are led away from a linear conception of historical evolution and toward an understanding of innovative developments in terms of the conditions that made them possible and, more importantly, plausible and thereby practical in their effects (Mheducation, 2019).

Going not so back in history, we can find direct translation to the effect of systems integration on businesses' failure and success. Compaq was a leading company in its industry; however, it was sold in

2001 to HP (Hewlett Packard), yet it was a failing merge. The company had shown a loss in the last quarter, investor confidence was slipping, and it seemed as if Compaq was being left behind in the blur of PC (Personal Computer) industry change (ward). Compaq wanted to dominate nearly every aspect of the computer industry, but its M&A (Merger and Acquisitions) activity seemed to distract company executives from the very successful business of selling PCs to corporations (Chancellor, 2015). Leadership teams must more effectively align their strategies with their shifting environments (Chancellor, 2015).

Speaking about technology, almost every house today around the world has at least one Apple item (iPhone (internet phone), MacBook (Macintosh book), iPad (internet pad), etc.). Why Apple could make it even though in the technology market there are many big competitors? Knowing that Apple is considered expensive compared to others. Although the Apple II was still selling, Apple as a company was in trouble when the 80s began (Beattie, 2018). Apple attempted updates like the Apple III and the Apple Lisa, but these failed to catch on commercially (Beattie, 2018). When Jobs overthrew Amelio and took the reins of Apple once more in 1997, the hardware had caught up to his vision for all things digital (Beattie, 2018). He launched the iMac (internet Macintosh) with a strong marketing campaign featuring the "Think Different" slogan (Beattie, 2018). Jobs, as a new CEO (Chief Executive Officer) was able to manage the problem and make people want Apple's products through marketing, appealing designs, and user-friendly systems, otherwise, Apple could have been now from the past.

Away from big companies and using dimensional strategies, in general, the problems that face most SMEs globally apply in Canada too. This comes from the fact that there are many subtle and more obvious differences between SMEs and larger corporations. SMEs are smaller organizations and therefore differ from larger corporate entities in many ways such as the difference in number of employees and access to resources. These differences are typically seen in their structure, with SMEs often presenting a more fluid and flattened structure compared to larger organizations. SMEs also tend to have access to fewer resources, including money. In addition, SMEs tent to be more flexible with an ability to make decisions more quickly than their counterparts. This goes back to their often less hierarchal structures. They also tend to have smaller teams that are more engaged in the work and have a better ability to communicate both within and between team units. On top of this, SMEs tend to engage in a more project-oriented structure than many larger organizations, making them a good target for project and portfolio management frameworks. Innoframe has been designed based on the size and scale of the environment seen in SMEs.

Many small businesses believe that applying management strategies need more resources which in most times they can't afford on human and financial level, also they can't support researches to find better strategies through researches to know their direction. However, there are several opportunities that can higher their performance through competition and benchmarking, if not between other companies, it can be internally by comparing their products or techniques to the standard of cost, time, and quality. Technological planning and ERP (Enterprise Resource Planning) tools, used by large companies, can apply to a certain level on SMEs too to benefit them.

As of December 2015, there were 1.17 million employer businesses in Canada, of these, 1.14 million (97.9%) businesses were small businesses, 21,415 (1.8%) were medium-sized businesses and 2,933 (0.3%) were large enterprises (Government of Canada, 2015). The construction industry accounts for 7% of GDP (Gross Domestic Product) when considering its impacts on all economic sectors, and it maintains and repairs nearly $2.3 trillion in assets (build force). Since 2010, Canada's annual GDP growth has average 2.5% for all industries and 2.8% for the construction industry (build force). Construction employment growth tracked overall employment growth in 2017, growing by 1.8% (build force). This shows that SMEs contribute to the Canadian economy way more than large enterprises. Also, the building industry shows a growth in the annual GDP.

As innovation, portfolio management is considered new in project management and cover it. They are both equally important tools for achieving strategic business goals, and along with a variety of other implements and techniques, must be employed properly within an organization if said organization wishes to fully realize their potential (Igartua et al., 2010). Globalization forces to understand it more because of great competition between other countries which relatively have better prices with competitive quality, thus urging the SMEs to enhance their technologies on the long term to stay on the market. However, there are many difficulties, some of which are:

1. Not knowing the projects dimensions therefore not grouping them in the right portfolio;
2. Inadequate budget for the projects;
3. Inability to recognize the risks early;
4. Improper understanding from employees of the whole process.

Although portfolio management is part of innovation management, innovation is also a part of portfolio management that plays a big role in finding the future and making it brighter. Therefore, those challenges can be solved through:

1. Realizing capabilities and potentials to invest them to the maximum;
2. Preparing documents for risks to avoid maximum problems in the future;
3. Creating a platform and dialogue to come up with closer opinions.

Portfolio management can come into play for SMEs who are stuck in the single-lensed view of innovation as a tool solely usable for product development and improving technologies. This is due to the fact that it can help to organize ideas and innovative project options to ensure that the best overall grouping of initiatives can be implemented by an organization. In this way, upper management, or company owners more often for SMEs, can pick and choose a grouping of options where each project or initiative satisfies a different aspect of innovation.

From a specific technological standpoint, innovation can be defined as new ideas that lead to the design and manufacturing of creative products or processes (Mcadam, Keogh, Reid, & Mitchell, 2007). This can be compared to the broader perspective on innovation which defines it as a complex and dynamic progression whereby people and process issues are systematically incorporated into a theoretical conception (Mcadam et al., 2007). This broader view of innovation incorporates the more specific technological definition into it as well (Mcadam et al., 2007).

Innovation was never a tool for one company or another. It has been always a dynamic tool to grow more success when used right. One thing that makes the organization of innovation projects even more important is the fact that innovation is often not a task isolated to a particular organization (Mavroeidis & Tarnawska, 2016). Firms may collaborate with numerous institutions in an attempt to realize their innovation initiatives (Mavroeidis & Tarnawska, 2016). SMEs can partner with Universities, research and academic institutions, or other companies who will perform some or all of the research and development of innovation solutions for them. By collaborating with others, they can save both time and employees in order to focus on keeping the day to day functions of their business intact.

1.2. The problem

The “construction and building materials” industry in Canada is worth investing in because it shows growth during the years and affects the GDP positively. While there is an incredible amount of variation between the various industries that we have amalgamated here into the ‘Constructions and Building Materials’ Industry category, this was done because of the nature of the companies we were dealing with. Every one of them participated in some way to the construction of buildings in some form, whether it be as renovations, base materials, or performing the construction of buildings themselves. It

is understood that this is an incredibly broad category composed of sub-industries which arguably are industries in and of themselves, however the shared roles within society of these organizations allows for the conglomeration of the industries under one broader umbrella. Many SMEs operating within the construction or building materials industries fall into both categories. It was also important for the framework to be developed with a variety of different industries in mind with the goal being that input from professionals in those industries would help shape the framework into something that was usable across industries instead of only having input from companies making cement, for example, resulting in a framework that was skewed to their needs alone. And as we noticed, the economy is based on SMEs since they dominate over large enterprises, therefore developing multidimensional frameworks is essential to help improve this sector faster with less risks.

Traditional framework-based application development assumes applications are based on single frameworks extended with application-specific code. More recently, it has become clear that application development is often based on multiple frameworks that have to be integrated with one another (Mattsson, Bosch, & Fayad, 1999). Aligning processes comprises portfolio analysis, project selection and resource allocation, as well as portfolio realignment; aligning processes are mainly concerned with collecting and storing project data (Thiry & Deguire, 2007).

While setting strategies and plans is crucial to SMEs to compete in the market, those suffer from integrating their models to come with a coherent plan. Basically, they focus on single dimensional models which are not enough to boost the process to reach the target with the least risks and maximum efficiency. Lack of investments in this area also limits the uptake of digital technologies and their effective use to enhance productivity and access markets (OECD, 2017). In addition, lack of entrepreneurial skills may hold back adjustment and greater participation of SMEs and entrepreneurs in the "new world of work" brought about by increasing digitalization and fragmentation of production processes (OECD, 2017). Although SMEs do represent most of the Canadian market, they have hard times to access the general market. SMEs are typically more dependent than large companies on their business ecosystem and, due to their internal constraints, are more vulnerable to market failures, policy inefficiencies and inconsistencies (OECD, 2017). While the disproportionate effects of these failures on SMEs are well documented, perspectives differ on how they should be tackled and on the policy instruments which are effective in levelling the playing field or addressing specific barriers to SME development, while promoting healthy market dynamics (OECD, 2017). A major effort is needed to better understand the combined effects of structural reforms on the SME business environment, as well as on the role and impact of policies targeted to SMEs, including to foster innovation, sustain business

dynamism, support skills development, ease access to finance, and enable access to public markets (OECD, 2017).

From here, we can understand that many companies focus on one dimension to improve their work. Thus, resulting in direct failures at the levels of:

1. Lower quantity production;
2. Slower pace production;
3. Lower revenues;
4. Vulnerability to recession.

As SMEs contribute to the global economy, most couldn't reap the benefits. Failures in financial markets, due to asymmetric information and agency problems, typically limit access to credit by SMEs and start-ups, which are often under-collateralized, have limited credit history, and may lack the expertise needed to produce sophisticated financial statements (OECD, 2013b). This is an area where the case for policy intervention to correct these failures is well recognized (OECD, 2017).

This is where another form of the interconnected nature of project and portfolio management comes into play. Governance is important for both project and portfolio management and a way for organizations to safeguard the success of their projects. It can be done at all levels of the management process for projects. Governance is a core tool that can be used to ensure the proper functioning of both project and portfolio management. Without governance, firms run the risk of allowing projects to move forward, contrary to the strategic goals of the organization, wasting both resources and time (Stratton, 2011). This can ultimately result in a semi-directionless organization, with no real strategy for success.

As many organizations focus only on resources allocation to improve their businesses, they fail to improve due to lack of good implementation and interconnection between strategies and the management itself. To create successful projects a future vision is needed.

Stakeholders, the kings of the game, are as important as customers which we need to satisfy as their role is essential to project success. As owners, top management and shareholders might not be aware of the real detailed situation going around, however, focusing most of the times on the broad strategic path and the general profit flow for the company, especially in SMEs, managers do an effort to convince them with the importance of integrating several models to come up with the ultimate solution which shifts the company to another level.

Linking all these reasons to create a solution for managing and reducing the failures of SMEs in the building materials sector requires a complex system that integrates the project, the portfolio, and the innovation, to create a high vision technology in the realm of building materials, especially because as we're moving on, technology is moving so fast in creating new materials that SMEs can't afford (3D (3 Dimensions) printing, titanium foam, etc.). It is known that innovative technology is started by simple approaches/sparks but needs lots of development to catch the light. Here, many large companies take advantage to develop and lead in the domain. Therefore, they urgently need a multidimensional framework to follow up and lead, otherwise they'll stay behind.

The government may support the SMEs by creating supporting policies that facilitate their work, however one hand can't clap on its own. Multiple efforts are needed to ensure the continuity of small businesses. It needs a full collaboration between the public sector and those businesses to ensure the maximum complex framework alignment.

The big problem lies in focusing on one dimensional frameworks that lack many essential factors such as flexibility, universality, integration, communication-aid channels and others to help support SMEs on more than one level. The industry needs more serious and thorough studies in the fast running world, where big eats small, to foster the construction and building material sector policies in Canada as it is a promising domain.

1.3. Purpose of the study

SMEs are the leaders of the economy but as they strive to lead, they face many challenges that prevent them from leading due to lack of management in the investments.

Also, they lack many skills and essential information to guide their track. Thus, they're vulnerable to market failure.

In summer 2015, EY (Ernst & Young), in partnership with the Hunter Centre for Entrepreneurship and Innovation, conducted a survey of more than 250 Canadian organizations across a variety of sectors and industries to gain insight into how organizations approach innovation as a driver of growth (EY, 2015). If one thing about the results of the survey rings true for organizations in Canada, it is this: truly effective and sustainable innovation is much more than brainstorming and out-of-the-box thinking, it is the force that enables organizations to develop new, viable offerings, that create value for their business (EY, 2015).

Today, against a backdrop of increasingly global competition, rapidly evolving technology, fiscal, demographic, and social changes, the business leaders most likely to thrive are those who embrace the critical role that innovation plays in their organizations' growth strategy (EY, 2015).

Governance tactics can be a useful way to give increased structure to their organization, without sacrificing the innovative capabilities and creative freedom that smaller projects can offer. It also means that implementation of both project and portfolio management techniques can benefit SMEs. Anything that they can do to save precious time, resources, and money will mean that their innovative solutions and ideas will go further for them and potentially allow them to grow their businesses more quickly.

There are other risks for SMEs that increase with rapid growth. Almost all businesses want more contracts, but with them comes a greater risk of a contract dispute or bad debt. Keeping on top of sector specific regulation, tax affairs and statutory licenses can also become increasingly difficult as a business expands quickly (MacDonald, 2018). Here comes the importance of implementing a multidimensional management for SMEs to integrate them in the market and ensure the continuity of businesses on long term. According to (Abrahamsson, Tosteby, & Isaksson, 2010), Integration has several advantages such as:

1. Standardization;
2. Effective support of processes;
3. Using resources optimally;
4. Reducing sub-optimization;
5. Minimizing problems with communication between different areas.

To be regarded as a fully IMS (Integrated Management System), mission, vision, policy, objectives, organization and roles should be well understood and accepted by the organization. Process and routines are set and managed in an effective and flexible manner, including the routines for following up and improvements of the system (Abrahamsson et al., 2010).

It should be also marked, that the realization of united management systems, including integrated management systems, is inherent from organizational culture, which supports a few things: employees taking part in submitting the solutions for the organization’s development and solving problems, teamwork, constant learning and improving, dedication and personal leadership and coordinating various interests (Raišienė 2011).

To Raišienė, the implementation of management systems integration should be based on provision of social responsibility and holistic approach to the organization. The implementation of management systems allows optimizing the processes of organizational management:

1. To organize the processes of organizational activity smoothly;
2. To meet the deadlines;
3. Not to exceed the planned budget;
4. To reduce faulty work and waster to a minimum.

Of the arousing concepts is sustainability and its importance for the globe. Still defined in several ways. Sustainability has often been defined as how biological systems endure and remain diverse and productive. But, the 21st-century definition of sustainability goes far beyond these narrow parameters. Today, it refers to the need to develop the sustainable models necessary for both the human race and planet Earth to survive. Implementing to our daily life of the growing need to build, sustainable building materials are becoming more important where many universities and companies focus on developing those materials and have become part of some awards.

One day, we might end up never using concrete or wood, and this may be especially relevant for Canadian industry which focuses on the wood because of cold weather. This is a simple example of why SMEs in building materials should be innovative to create the real projects needed to ensure its competition in the market.

SMEs also tend to rely more on innovative capabilities to counteract against their higher level of vulnerability compared to larger organizations (Raymond, Bergeron, & Croteau, 2013). This is especially important now, since our economy has become increasingly knowledge-based (Raymond et al., 2013). In the manufacturing industry specifically, innovation is incredibly important to remain relevant and continue to adapt to the quickly changing environment (Raymond et al., 2013). With this in mind, it is clear why incorporating the innovation tools of project and project portfolio management are so important for SMEs. While using one or the other would still be beneficial to an organization, a combination of the two will fuel the success of projects and of the combined success of projects enacted by the organization to achieve business objectives.

On one hand, this study focuses on creating an integrated approach for SMEs to radically support their processes and operations in the functional system. On the other hand, it makes sure to align with progressive technology to compete in the domain of construction and building materials in Canada. The ‘Case of Canada’ was identified because of the convenience of the location of the companies that

participated in the interviews, group discussions, observation sessions, and surveys. The cultures seen within the organizations as well as the experiences and team developments all represented a snapshot of solely Canadian companies. Since a large portion of how Innoframe was developed was based on the feedback and contributions of these companies in the case-studies, and these companies and the operations studied were all located in Canada, it makes sense that the research would have a uniquely Canadian lens. Ideally Innoframe, even being developed from the Canadian landscape, would be transferable to construction and building materials companies elsewhere in the world. However, since the research did not include countries from anywhere other than Canada, the 'Case of Canada' made sense rather than arbitrarily assuming that what works here would work perfectly anywhere else.

1.4. Motivation

In Canada, the share of manufacturing firms is quite high compared to other G7 (Group of Seven) countries, with per capita exports second only to Germany (Mohiuddin, 2013). The main export partner of Canada is the United States, with approximately 75% of goods ending up south of the border (Mohiuddin, 2013). More than this though, more than 98% of Canadian manufacturing firms are SMEs (Mohiuddin, 2013). This is an incredibly high number, and one which makes the Canadian manufacturing sector a particularly good field to study the role, benefits, and other impacts of portfolio management on SMEs. So, SMEs are main pillars of its economy, which encourages us to support this essential correlation.

On the first hand, globalization has the potential to open up access to new markets, technologies, skills and capital for SMEs (OECD, 2004). On the other hand, further economic integration brings with it a striking increase in competition from imports, the entry of new foreign investors and the strengthening of domestic, large firms that start to take over traditional, mostly local SME markets (OECD, 2004). Therefore, little SMEs are able to grab the opportunities to bloom and deal with the challenges.

Many ideas start from a spark. Observing light or not depends on how much this develops in a healthy framework. And here it is good to mention that some models that can help an SME develop in new markets might lack compatible strategies and application methods due to the misunderstanding of market demands, capital and resources scarcity.

The economy usually has varying supply and demand in different sectors. This motivates us to open new innovative paths. Noting that many conducted studies are very productive theoretically, however, practically, there are many constraints that reduce the efficiency of any study. And here lies the

importance of this study in creating a comprehensive model, which integrates several one directional frameworks, to create a multidimensional vision, validating the innovation in the projects' portfolio for SMEs.

According to the 2nd OECD (Organization for Economic Co-operation and Development) conference of ministers, some key policy recommendations are illustrated in:

1. Embedding strategies toward the private sector and SMEs in countries' broader national development;
2. Strengthening SMEs capacities to improve their competitiveness in domestic, regional and global markets;
3. Promoting policy coherence at regional, national and international level;
4. Maximizing the spillover of management skills and knowledge from multi-national enterprises to local SMEs.

What also makes it a more interesting study is that it will contribute, by the end of the day, to improve the whole industry under study and, consequently, the whole economy. It is clear that there is a direct translation on the basic level in which those strategies will boost customer satisfaction and improve employees' productivity, thus creating a mutual trust between them.

On another level, as competition in the industry is very critical, the study urges small and medium businesses to focus their efforts on creating a complete method which shortens the way to success, minimizing the risks within a time frame. What is observed in many companies is that they focus on one side of the game; production, innovation, marketing, improving the technology, etc., without being aware of the importance of correlating some of these concepts into an integrated system that can save a lot of resources and time while they are suffering from the lack of those human and capital resources.

In addition, it is known that building materials are basically extracted from natural resources such as trees, mountains, excavated materials and such. In our today's world, natural resources are seriously endangered. The Living Planet report calculates that humans are using 30% more resources than the Earth can replenish each year, which is leading to deforestation, degraded soils, polluted air and water, and dramatic declines in numbers of fish and other species (Jowit, 2008). So, this research is a need more than just a motivation. Substitutes and new technologies that focus on new resources and controlling the use of natural resources is an urge. The problem is also getting worse as populations and consumption keep growing faster than technology finds new ways of expanding what can be produced from the natural world (Jowit, 2008).

There are many benefits of project, portfolio, and innovation management, especially for the SMEs in the constructions and building materials manufacturing industry, in terms of optimization of processes and operations. Project management plays a key role in ensuring that projects achieve their intended goals, which often have to do with developing the organization's strategies, achieving set mini-goals, improving processes to make the organization more efficient, or developing new and innovative products (Kopmann, Kock, Killen, & Gemünden, 2017). In the manufacturing industry, product development is incredibly important, and so along with strategic organizational goals and making processes more streamlined, projects are also employed in product development (Banaszak, Zaremba, & Muszyński, 2009).

All of the above described matters show some sides of the big importance of conducting this study in order to have this integrated system that shall maintain a multidimensional model for companies, industries, and economies.

1.5. Research question

Since this research plans to navigate horizontally into more than one concept to come up with some sort of multidimensional integrated model that can fit the best for SMEs, the below main question was accordingly drawn:

How can an integration among project, portfolio and innovation management create a multidimensional framework to support SMEs for better end results on the three levels?

This will be discussed in several phases in order to be able to create a rigid foundation for the end result or solution.

The above question encompasses many implicit matters that need to be discussed thoroughly. If most SMEs considered one defined model or framework as a main streamline for their projects, things might end up having a dramatical change on this level. As a country in the western world facing higher operational and employment costs, Canada faces an increased challenge, especially in their manufacturing companies, to keep products competitively priced (Mohiuddin, 2013). This should be regulated by governments or related syndicate. How to face market distortion, lack of competition, and avoid free riders who will get free services without bothering. Given the numerous benefits that portfolio management offers with regards to cutting costs while making organizations more efficient and projects more effective towards achieving goals, it is an even more critical tool for Canadian SMEs to employ. By doing so, they have a better chance at staying competitive and therefore remaining as a successful

business. Studying previous frameworks through history, their targets, limitations and problematic will help this framework to be more integrated and filling the gaps of previous studies.

To come up with one picture out of this whole study, we should understand the level of needs and to which scale should it apply. In the 1980's traditional theories brought forth about innovation and innovation management were becoming insufficient due to the increased need for organizations to be adaptable and set more rigorous goals for innovation (Xu et al., 2007).

1.6. Approaches of research development

Research methodology refers to the process used to collect data, analyze the data, and make conclusions based on the data for the sake of the research objective. Research methods may be in the form of a survey, analysis of secondary and primary data, etc. The objective of the study is to design a new business framework that helps companies in the project, portfolio, and innovation management. This section seeks to explain the research methodology and the different methods that the research follows according to Saunders Onion (Saunders, 2009). In particular, the section will focus on the methods used in the research as outlined by Saunders Onion. These are the research philosophy, approach to theory development, methodological choice, strategies, time horizon, data collection and data analysis methods. The following sections are explanations of these methods in detail about the main topic - to design a new business framework that helps companies in a project, portfolio, and innovation management.

1.6.1.The philosophy

The research applied pragmatism research philosophy. This philosophy accepts ideas and takes them as relevant if they back action. Pragmatism research philosophy relies on different methods because there is no way the entire world can be interpreted using a single philosophy. Pragmatism shows that there is no single answer to all the world's research problems.

Research philosophy may involve two extreme ends or use a continuum approach. This research embraced a continuum approach between positivism and interpretivism even though these are the two extreme options in research philosophy (Collis & Hussey, 2013). Despite the two approaches are mutually exclusive, the researcher modified the assumptions of the pragmatism approach and settled on a continuum position. This is because the researcher is experienced in research.

In pragmatic research philosophy, there is no single method that can work to satisfy the need of the research and that the most important determinant of the research philosophy to be used in not the

researcher but rather the research questions. In this research, therefore, there was a need to solicit the benefits of positivism and interpretivism at the same time for a single scope of the research. Furthermore, pragmatism research philosophy that was employed in this study embraced a qualitative approach, conducted through multiple methods and forms to obtain the best possible quality of results.

The research employed an inductive research approach, a subjective ontology, value-free axiology, and both qualitative and quantitative research strategy (Cooper & Schindler, 2006). Pragmatism employs several methods, as long as they are working towards the attainment of the goal. What is at stake according to this method is the research question.

1.6.2.Theory development

This research used an inductive approach from the conceptualization of the research to the development of the corresponding conclusions. This approach is also known as inductive reasoning. The approach begins with the analysis of the observations made, and the conclusions are drawn from the observations at the end of the analysis. Theories and hypotheses are not developed at the beginning of the research because the conclusions rely solely on the observations made. This method involves the gradual development of theories and conclusions based on the observations made at each step. This gives the researcher the freedom to alter all the research methods in the process of making observations to achieve the intended objective.

However, it should be noted that inductive reasoning does not involve disregarding the already-established theories in the development of the research questions and objectives. The approach, rather, focuses on the development of meaning from a set of data collected by analyzing the possible patterns from the observations. The researcher has the option to use the existing theories as he/she formulates the new theories or not. This approach uses experiences (premises) to formulate a conclusion (theory).

Since this is business research, the approach followed a bottom-up approach in the development of theories concerning the management of projects, portfolio, and innovation. Inductive reasoning, in this case, will begin with a detailed analysis of the world and then the development of abstracts about the observed data. The researcher will develop generalizations and identify the kind of relationships between the observations as the research progresses. Again, no hypotheses will be developed at any stage before the conclusions are reached. The conclusions are made at the end of the research. The research will also associate qualitative analysis in data analysis.

The selection of this approach to theory development is founded on the two major advantages of using inductive reasoning in business research. These are the availability of many possibilities and the setting of a level for further research.

The availability of a myriad of possibilities when one uses inductive reasoning approach is the biggest advantage of this approach. Even though some of the possibilities will be uninteresting, there will be several options to explore. This is especially important bearing in mind that when one needs to conclude observations, there are higher chances of making a better conclusion when the data is large compared to when the data is of a smaller size. Inductive reasoning provides the several options needed to collect a large set of data. Inductive reasoning is used in all spheres of life such as professional and non-professional chores.

The second advantage of using inductive reasoning in research is the fact that it sets a platform for further research. This approach starts with single scrutiny or suggestion. This develops a need to go further and analyze whether the finding is correct or otherwise. The use of inductive reasoning, therefore, demands an exploration of the circumstances and assumptions made to reach the conclusion published. Furthermore, inductive reasoning enables the researcher to determine the accuracy of the conclusions made while investigating the possibilities used.

The combined advantage of using the two advantages mentioned above will lead to a better understanding of the observations made before making the final decision on the development of the new theory.

1.6.3.Methodological choice

This research employed a multi-qualitative method. Qualitative research is a method of conducting research which uses open-ended questions and simple to complex conversations to solicit information. Multi qualitative research method uses pure qualitative methods without regards to the quantitative approach. And in a certain aspect the multi qualitative approach is similar to the mono qualitative research which does not just collect information about what is happening or what happened but rather focuses on the reasons why it happened (Saunders, Lewis, & Thornhill, 2009).

Multi qualitative approach may include different types. These are a one-on-one interview, focus group discussion, ethnographic research, case study research, record keeping, and observation. These types form the list of which the research tools will be selected in the upcoming phases.

This methodological route comes in line with the criteria of the qualitative researches that include number of elements:

- ❖ In qualitative researches the study aims to explore the meaning of people experiences and cultures throughout particular issues and cases;
- ❖ It seeks to explain and understand a certain phenomenon through answering the questions of "what" and "why";
- ❖ The data that are being treated in such context has the form of narrations, cases, pictures and experiences;
- ❖ The question that are used throughout the data analysis phase hold the nature of open-ended questions which are used to better explore and understand specific situations;
- ❖ The research design is flexible, it emerges and evolves as the study develops;
- ❖ The results may be presented subjectively, may reveal biases, values or experiences that impact how the results are interpreted.

- One-on-one interview

The use of interviews, especially one-on-one, is one of the most common types of qualitative research. The interview involves the interrogation of one respondent or group of respondents per session. The method is based solely on the conversation so that the researcher can get to analyze the physical clues. This method is advantageous in cases where the accuracy of the data is of utmost importance. The qualitative research also allows the researcher to seek follow-up questions in case the answers are not clear or are non-satisfactory.

- Group discussion

This is yet another common qualitative research method. A focus group discussion uses sets of smaller groups from the sample which are representative of the whole population sampled (Saunders et al., 2009). The questions of why, what, and how are easily answered using this method because it has been made possible to send questions via an online platform and get the answers from different geographic locations. This method was particularly useful because the research sought to develop new concepts about the topic.

- Ethnographic research

This type of qualitative research method requires that a researcher identifies him/herself with the target population by living and experiencing all that the population experiences on a daily basis. This enables a researcher to gather information from the typical setting which is normally a true representation of the sample behavior and hence a true picture about the topic. The method requires that the researcher dedicate enough time and carry out an in-depth analysis of the sample at the natural setting.

- Case study

This method is used to explain a particular organization or enterprise. The method requires that the researcher dives into the identified organization's structure and analyze the organization as if it were a microcosm of the whole population. Results from a case study give a clue of what the real population or case behave in real life (Dubois & Gadde, 2002).

- Record keeping

This type of research focuses on the recorded information as the main source of data. The recorded data can be analyzed to come up with a new trend or theory about the issues at hand represented by the data. This is more or less the same as using secondary data.

- Observation

Observation uses subjective methods to solicit data from a sample. Observation makes use of the five senses - sight, taste, smell, hearing, and touch (Mills, 2000). A critical application of these senses reveals a lot of useful information in qualitative research.

1.6.4.Strategy

This research falls under the category of "case study" research. A case study was employed because we could get input from real people working in the field and in project management. Through the use of interviews, group discussions, surveys, and observation, team members and project managers provided incredibly valuable real-world insight for the development of Innoframe. This allowed for the framework to be based primarily on a real-world setting, rather than simply drawing from previous research or a literature review. Of course, information gathered from the secondary research such as the literature review and the currently available models was incorporated into the process of developing the Innoframe model. This being said, the goal was to rely heavily on input from professionals in the field. Because of the in-depth nature of the research and development of the tool, case studies were employed due to their versatility as a qualitative research tool. In addition to this, the study was primarily an exploratory study and case studies lend themselves well to this type of study due to their ability to answer the 'how' presented in a research question. In addition, case studies encompass a variety of tools, many of which were employed for this research to ensure that a big pool of information was being collected and analysed. Case studies lend themselves well to solving complex issues through holistic and thorough investigations within an organizational context, which is why the case study model is the main route for this study.

The research strategy was developed in a way to clearly focus on answering the specific question that has been raised as the main research question. More specifically, this research is better linked to the fact that the case study is a versatile form of qualitative inquiry most suitable for a comprehensive, holistic, and in-depth investigation of a complex issue in an organization, where the boundary between the context and issue is unclear and contains many variables. It comes as a primarily exploratory and explanatory in nature. As it is seen throughout the study, it has been used to gain an understanding of the issue in real life settings and recommended to answer the "how" research question. Moreover, the use of multiple methods to collect and analyze data was fully utilized and found to be informative enough in this "case study" research where together they provide a comprehensive view of the issue being studied.

The process employed in this strategy involved the following steps:

- Selecting focus

The strategy began with the selection of the topic to focus on. No strategy was worth selecting unless it showed the potential of adding value to the project, portfolio, and innovation management.

- Clarifying approach

The second step involved clarifying the approaches that have been seen as applicable in the research. For example, which methods could be used to strategize innovation, project, and portfolio management?

- Identifying research problematic/question

After the selection of the topic on the management of portfolio, project, and innovation, there was a need to identify the specific study questions. The questions were formulated by the need to address the topic.

- Collecting data

Portfolio, project, and innovation management experts always want data that can be relied upon (Harrigan, 1983). To ensure this, the researcher focused on the reliability of the data and hence used more than one source of data.

- Analyzing data

The research focuses on user-friendly data analysis methods such as simple manual interpretations that extract direct meanings, and like automated software that can help in identifying trends, connections and coherencies to better understand the general themes. The research did not focus instead on complex data analysis methods that rely on advanced algorithmic tools to process unstructured data.

Case study was chosen as a main strategy route because it meets the needs of the three focus areas - portfolio, innovation, and project management. Case study refers to a research strategy where the researcher focuses on a particular case rather than analyzing all the scenarios and data. This was done because the field of project, portfolio, and innovation management is a very wide topic and needs researchable cases to be selected (George, Bennett, & Kennedy, 2004). Further, while it is true that the use of case studies in the fields under study could not give the exact answers to the research questions, it would help in the formulation of the analysis of the specific cases in the study.

There were several reasons for the choice of case study approach. First, the use of a case study provides a holistic view of the whole idea and provides relatively realistic responses compared to statistical approaches. Secondly, the use of a case study provides the flexibility so desired in doing a study about three variables. While other strategies may be focusing on approving or disapproving hypotheses, case studies have the capability and potential of generating unexpected results in the course of the study and hence may change the research direction (George et al., 2004). Furthermore, the presentation of the results of a case study is more appealing to business in the field of a portfolio, innovation, and project management as they provide real cases as opposed to statistical methods which give several data in figure form.

To design the case study, it was necessary to select particular portfolio, innovation, and project management contexts and focus on them. This has given the researcher more time to analyze and interpret all data collected.

1.6.5.Time horizon

This research adopted a cross-sectional method time horizon. This was the best alternative because the research was conducted over a short period and analyzed data from a particular period.

In cross-sectional timeframe approach, there is no fixed time within which the research or data collection should be conducted. Rather the determination of the period to use depends on the "perishability" of the data in question. If the data is likely to be outdated very fast or is highly dynamic, concerning time, then there is a need to narrow down the period to days or weeks, depending on the suitability (Ghauri & Grønhaug, 2005). On the other hand, if the data is unlikely to change much, concerning time, there is no need to hurry, i.e. the research can be conducted for a longer period. In the case at hand, for example, the data of the management of the project, portfolio, and innovation relied on technology and, therefore, there was a need to carry out the research very fast as any delays would lead to obsolete data. The research minimized the period for the time collection to ensure that

the data analysis result was up-to-date and hence reliable (Gow, Ormazabal, & Taylor, 2010). A longer period of data collection in such a case would have resulted in the production of unreliable conclusions. Data was collected using interviews, questionnaires and other methods, over a reasonable time period.

The cross-sectional data used in the study was collected by observation of different subjects regarding projects, portfolio, and innovation over the same period without considering the time difference between them. The cross-sectional time frame does not bother with time. Rather it gives a focus on the subject relation alone. As an example, the researchers wanted to measure the current level of success in project management of some companies. The sample drew a manageable sample from the identified population and measured the levels of success concerning a set of factors such as time and profits from the project. Cross-sectional time frame provides us with a preview of the entire population at the time of the study. Further, cross-sectional time frame does not tell the past or future projections of the sample behavior. The time horizon only describes the current situation.

Cross-sectional time frame randomly determines the presence and the time at which an individual in a sample is present. The approach selects the specimens from the entire population and then randomly allocates the date for each. This allocated date will determine the date of the analysis of the individual (Ghauri & Grønhaug, 2005). This date will then be inculcated in the survey. Data obtained from a cross-sectional time frame could be used in a regressive model analysis.

Cross-sectional time horizon has several advantages. These are: it can be applied in disapproving or approving an assumption, it is cheap to carry out and takes a shorter time, it analyses a specific time point critically, it uses many variables at the point where the data is collected, and the findings can be applied in different researches. Moreover, cross-sectional time frame provides a room for the analyses of different data to come up with a multiple numbers of theories.

1.6.6.Data collection and analysis

The research used interviews, survey, observation and group discussions to collect data. The analysis of the data was done through the NVIVO software (QSR, 2019).

This subchapter is designed to give a quick and shallow understanding of the tools used and their importance in the context of this research.

Starting with interviews, an interview is fundamentally an analytical talk to solicit information. Research involves two parties, the interviewer and the interviewee (Onwuegbuzie & Leech, 2005). The appropriateness of an interview depends on the depth to which the interviewer wants to solicit information. Face-to-face interviews enable the interviewer to gauge the accuracy of the information

being delivered by the interviewee. Interviews allow the interviewer to analyze the feelings and thought of the respondent more deeply since human feelings are easily seen in a face-to-face conversation.

Interviews come in different types and forms (Onwuegbuzie & Leech, 2005). These are structured interviews, semi-structured, and unstructured interviews. Structured interviews involve a set of different questions and answers from which the interviewee is supposed to select from. There is also a chance for the interviewer to make clarifications about the questions in case the interviewee is not comfortable with some. Semi-structured interviews involve the use of both structured and unstructured interviews. Unstructured interviews involve the use of random questions posed by the interviewer, and the interviewee is expected to respond randomly. All types of interviews follow a set of steps in the administration of the questions i.e. the interviewer defines the objective of the interview, identify the type of interview to be used, choose respondent(s), decide the manner in which the interview will be conducted, and deciding on which manner to recruit respondent(s).

Moving to the survey, it comes in this context as an important method of gathering information from a selected sample of people, traditionally with the intention of generalizing the results to a larger population. Surveys represent a critical source of data and insights for nearly everyone engaged in this phase. And it comes in different forms such as face-to-face, self-administered paper and pencil and other forms.

The third to speak about here is the observation. The observation method is useful to this research in a variety of ways. They shall provide a way to check for actions, reaction, and other expressions or feelings that could not be checked through paperwork, telephone or emails. In addition, an observation would allow the determination of who interacts with whom and a better understanding of how communication is happening among the team.

As for the group discussion, it is another mean to be used for data collection in this study. It gathers together people from similar backgrounds and experiences to discuss and analyze a specific topic and matter. The participants in the group are to be guided by a moderator (the main researcher of this study) who introduces the matters for analysis and guides the flow of the discussions.

All the data collected through the above methods are to be analyzed through more than one phase. The data shall be manually analyzed on one hand, and through NVIVO computer software on the other hand. NVivo is a qualitative data analysis software used on computers (QSR, 2019). It is designed for qualitative researchers working with text-based or multimedia information, where deep levels of analysis on small or large volumes of data are required.

1.7. Significance of the study

One of the major obstacles facing Canadian manufacturing firms has been the competition from abroad where operational costs are lower than in Western countries and the quality is higher or equally acceptable (Gordon & Sohal, 2001). This along with increased volatility and competition from the United States, Canadian manufacturing firms are looking to expand into the global market, both with exporting and offshoring options (Mohiuddin, 2013). The increase in globalization has made it necessary for Canadian SMEs to have more supply chain agility, more efficient and low-cost processes, and to get better at global sourcing, all of which pose challenges to these SMEs (Mohiuddin, 2013).

Practically, to be competitive in the global economy, it is not enough to set the projects and portfolios for a determined term. These should be working under the umbrella of innovation management to ensure the fastest delivery.

The variety of ways innovation can be employed within project portfolio management speaks to its diversity and its importance in the discipline. Each technique contributes differently to benefits of portfolio management.

As the businesses rely on systems in daily business cycles, creating a system or a framework that integrates project portfolio with innovation will definitely help SMEs which do not prefer dedicating well-structured workforce to focus on creating special models for increasing optimization and efficiency. The development of project management and the ever-growing popularity of project approaches has led all departments in organizations to tend to create their own methodologies and standards of project management. The lack of proper communication inside the company is the main cause of a situation in which everyone builds his or her own island of knowledge about project management (Arnold, 2017).

Sears, one of the biggest companies in Canada, which sold almost everything that anyone needs, had closed most of its shops in 2018. The company currently has 687 Sears and Kmart locations, one-third of the stores it operated in 2013 (Chicago Tribune, 2018). The department store chain had been in business in Canada since 1953 but struggled in recent years to adapt to the internet age and a changing retail environment (CBC News, 2018). There are many related reasons lying behind the exit of such companies out of the business. The situation is even much harder for SMEs.

Thousands of people lost their jobs, BMCC (Building Material Council of Canada) offered those people jobs in the building industry that can be done by people who are shifting from retail over here, which

proves the elasticity and growth of this industry to handle the big number of employees coming from Sears.

As most SMEs suffer from limited budgets and scarcity in money fluidity, and not having enough credibility to afford big loans. In order to achieve their studies and projects, those organizations find them-selves in a limited circle with few solutions. Here comes the importance of innovation as a booster for portfolios to get the maximum of a project.

According to (Bodych, 2012), we should start from 2 questions:

1. What is the level of complexity from which an initiative should be treated as a project and when there should be an official project manager role?
2. Which initiatives should be treated as a process and which as a project?

This implies the importance of incorporating methodologies with other processes in an organization based on two main issues (Cooper, Edgett, & Kleinschmidt, 2002):

1. Running innovative projects in the right way;
2. Running the right innovative projects.

Cooper describes three main goals for effective project portfolio management:

1. Alignment with strategy;
2. Balanced portfolio;
3. Maximization of the value of the portfolio.

These factors affect directly the organizations' achievements in terms of making better decisions while having less risk, less time waste and good management of other resources. One of the most important factors is strategy alignment. Strategy is perceived as very important for an organization since it is the key element leading the organization into the future - guiding actions, plans and results (*Strategy and Budgeting Alignment*, 2010).

Portfolio management adds a certain amount of systematics and formality to the innovation framework (Boon, 2013). Those activities will allow to reach an optimum balanced portfolio facilitating the innovation in the organizations' systems.

Most companies use financial assessment to recognize their position in the market, however, this is not enough. This should be done by counting on short term goals and long-term ones. These financial tools don't work effectively in early stages of product or technology development, because uncertainty and risk are high (Cooper, 2007).

Success for project portfolios on new product developments requires the balancing between short-term benefits from incremental improvements of existing products and long-term benefits achieved through radically new products and services (Chao, Kavadias, & Gaimon, 2009).

Integrating those strategies will also lead to portfolio optimization with optimized investments helping in maximizing the current and future profit, therefore setting their growth pace in the market.

One of the most important impacts of this approach is in the industry future as we're moving fast with fast radical changes and how a product or service will adapt with the customers' changing needs. Technology between 1990 and 2000 had a different speed then technology between 2000 and 2010, this speed is accelerating day after day. Strategies need to reflect changes in the business environment (Vieira & Pina, 2010). Markets are becoming more customer-driven, based on innovation and quality (Vieira & Pina, 2010). So, the ability to compete is directly linked to the duration of a project.

Each factor plays a different role in assessing an innovative portfolio in a transparent and flexible way, and thus this study comes to provide a qualitative analysis in terms of the previous factors to help improve SMEs positions in the Canadian market.

2. Literature Review

A thorough literature review has been drawn below to help understand the broad concepts that are related to this research. The nature of this study requires digging into several related fields to better understand how to resolve the direct issue.

2.1. Background Information

Project management is an often-used term, but one that is not always fully understood. Simplistically, project management is the response to a need for organisations to manage projects occurring or scheduled to occur within their organisation. While this definition makes sense, it does not contribute much to a deeper understanding of the term. One definition which offers more insight into project management is from the Project Management Institute (PMI) that explains it as the act of applying knowledge, skills, tools and various techniques to project activities to ensure that they meet the project requirements (PMI, 2017b). Whereas portfolio management is something different yet interrelated.

To fully grasp the concept of portfolio management, the definition of a portfolio must first be understood. Depending upon the context, the field, and the specific business unit, a portfolio may have a slightly different meaning. This being said, at the root of every subtly different meaning of the term 'Portfolio' is a fairly universal understanding of the word. Whether one is referring to a physical portfolio used to carry items in, or the concept of a portfolio in a more abstract business context, a portfolio at its core is a collection of related items that are representative of the entity and context to which they pertain (Cambridge University Press, 2019). Portfolio management then, at its core - regardless of the industry or context it relates to - is the management of this collection of related items and ideas. Portfolio management is often thought of in the context of the finance field and with the idea of asset management. In this context, portfolio management is where various assets are packaged and maintained to ensure that the proper combination of items for the respective organisation exists. This mainly refers to assets such as stocks, bonds and cash, and is generally speaking, used to maximise the goals of investors (Yauck, 2001).

The third concept here is innovation management. It is another interrelated management component that complements both project and portfolio management. To understand innovation management though, innovation itself must first be understood in the context of an organisation. Innovation can be defined in both a specific technological sense as well as in a broader sense, and while both are

important to understand, the definition chosen by an organisation may result in the use of slightly different kinds of innovation (Mcadam et al., 2007). Innovations can be for anything from products, to business models and channels, processes, or services, making this a diverse tool adaptable to a variety of situations (Xu et al., 2007).

Moving more into the field where this research is targeting, it is important to understand the definition of SMEs. They are independent firms or business companies that employ less than a given number of employees.

SMEs are potential vehicles for national growth and poverty reduction, moreover they are considered to be one of the main driving forces of economic growth in both developed and developing countries with the introduction of innovative ideas, products, services, and business methods. They might even have a way to modernize uncompetitive economies to reform and reshape them. A study conducted in Washington D.C, USA by the SEAF (Small Enterprise Assistance Funds) shows that SMEs have a large positive impact on their communities as they work hard to attract, retain and maintain good relations with their local authorities and the community. This good relation is a main factor for their success. The SEAF results come from a designed study performed on 5 firms that are distributed along Central and Eastern Europe with another 5 that are found in Latin America with annual sales ranging from 0.3 million to 17 million dollars. These 10 firms were selected for the study based on the availability and agreement with entrepreneurs and employees to be interviewed. The study measured the incremental economic effects of each investment done by the SEAF or other institutes –over time- on the stakeholders including investors, employees, customers, suppliers, producers (of goods or services), competitors, local communities and the government. Extensive interviews were done with both the firms and their stakeholders. Some of the major results that demonstrate how SMEs affect their communities include the enormous economic impact. The results revealed that every 1 US dollar invested by SEAF and other institutions generated an additional 10 US dollars in the local economy. The investments have achieved a significant rate of return even in investments that used to generate low internal return rate. The greatest share of benefits went to employees followed by the government. A significant part of the total employment (2/3) in the selected companies was composed of low-skilled workers, confirming that SMEs are suitable for reducing poverty through the creation of new jobs. It was also observed a 28% real wage growth for low-skilled workers and a 34% for high-skilled workers, in addition to non-salary benefits such as training. As mentioned earlier, because employees tend to work for multinationals and large companies, SMEs work hard on maintaining their employees. Moreover, their employees benefit from the stability of employment, the payment of health and social security benefits

which in return helps save for their children's education and to prevent poverty, signifying multiple pathways in which SMEs can reduce or help to prevent poverty among populations (SEAF, 2004).

When it comes to globalization and its influence on SMEs, the process depends on both the level of development of the country and on their own individual level of development (Bijaoui, 2017). It is no secret that the continuing global trend of eliminating trade barriers and expanding global trade presents a double-edged sword. It is both an opportunity and a challenge for developed countries. The opportunity is manifested in enhancing revenue by selling more products to consumers directly or through intermediaries in worldwide markets, and SMEs can do so through direct distributers or representatives (Susman, 2007a). This means that an SME directly exports to distributors or final consumers located in international markets for direct globalization or opt to do indirect globalization by providing components to other national firms that are participating in a global value chain. They can also sell their products and services to intermediate exporters, such as wholesalers or agents situated nationally, which in turn would export them to international markets, but this advantage or chance is also coupled with challenges because SMEs are hampered by access to finance (OECD, 2012a). Access to finance is perceived as one major obstacle to growth and development, especially for SMEs in countries of low and middle income. In addition, when banks and other financial institutions start lending to SMEs, they usually provide small loans with short tenures as to mitigate risk until there is sufficient credit to warrant larger volumes of lending (WTO, 2014). Moreover, SMEs struggle for human resources to make use of this global opportunity, which forces them to team up with either national or foreign partners. Another way to fund the opportunity is by asking help from public sector organizations to supplement the enterprise's resources. The limitation of access to trade finance also affects exporters. Trade finance involves the seller, the buyer, and some intermediaries such as banks to agree on a contract enabling goods to flow across borders. Because a bank's involvement is usually required, it is often difficult for a SME to leverage the existing trade finance infrastructure to lower risk. Notably, SME managers often lack basic understanding of relevant trade finance instruments or financial business planning. This results in diminished participation of small firms in global chains due to the fact that these firms find difficulty in financing their production cycle, because after the delivery of goods most buyers demand 30 to 90 days for payment. Specific financial tools, such as "factoring" and "reverse factoring" have been designed to provide financing of working capital to small suppliers and have gone some way to alleviating the problem (OECD, 2006). Another hurdle for SMEs is entering new markets. Entering new markets needs substantial investment in information gathering that includes foreign prices, consumer preferences, standards and testing, in addition to information concerning

distribution channels to lowering exportation costs. So, SMEs being hampered by their access to cash find it difficult to fill out these information gaps to invest internationally. Furthermore, there can be disincentives to be the primary movers to the area they are investing in because gathering information concerning consumer demand and distribution channels may help competing firms. SMEs can also be reluctant to invest to enter new markets because they require additional advertisement and marketing if they are based in countries that have reputation barriers. Here comes the role of institutions that would help enterprises, and SMEs in particular, to overcome the entry barriers by centralizing the collection and spread of relevant information. Another difficulty SMEs face is in defending their interests which can be attributed to their small size. The latter situation can occur in different contexts such as bargaining with suppliers and buyers, and lobbying in favor of policies or regulations that SMEs find interest in. Another phenomenon more visible in SMEs than larger companies is keeping up with the technological change. This can happen because SMEs employ less technical specialists in addition to limited financial resources to actually buy these new technologies and even when SMEs are the incubators of these new technologies, they are challenged by protecting what they consider to be intellectual property (WTO, 2014).

2.2. General glance at project, portfolio and innovation management

In this section a general glance at project, portfolio and innovation management will be presented. It will serve as a preliminary explanation for the next chapter, giving broader understanding of each of the three matters project, portfolio and innovation management.

2.2.1.Project, portfolio and innovation management

The three following concepts will be addresses below each alone in a separate chapter, trying to shed the light on the main analysis and definition that are being adopted in the industry.

- Project management

The PMI definition satisfies the technical understanding of project management, outlining the more specific tactics used to employ project management. However, project management can also be much more broadly defined as it has become a discipline in itself. While its recognition as a profession did not occur until the mid-20th century, project management has been performed informally for as long as projects have been undertaken (PMI, 2017b). Project management is now widely regarded as the most efficient way to introduce change into organisations and is the discipline of managing projects (Dixon,

2000). It has become the most widely used method of problem solving employed by organisations and is often a key technique for innovation (Huff, 2016a).

Project-based organizations have become increasingly common, mainly due to the incredible flexibility which makes them more well-equipped than traditionally structured organizations to quickly maneuver through the fast-paced and constantly changing business environment (Mueller, 2015). These organizations are able to swiftly react to volatile customer demands in sophisticated markets (Mueller, 2015). The prevalence of these organizations in our society means that there is an increased need for effective project management and increased understanding in how effective project management can be achieved.

This raises the question of what exactly consists of a project. It is another term which is used often but is not always fully understood. A project is an operation which is temporary, unique from the other day-to-day functions of the business, and has a specified start and end date (PMI, 2017b). Because projects often operate alongside the normal functions of the business, and due to the fact that they have a restricted timeframe, projects generally also have a defined scope and a restricted availability of resources (PMI, 2017b). Projects are also usually meant to achieve a singular goal, intended to further the strategy of the organization (Kopmann et al., 2017). Finally, projects often bring together combinations of individuals from a variety of business unit backgrounds to work together with their differing skill- and knowledge-sets to accomplish the objectives established (PMI, 2017b).

For project management to be done successfully, project managers need to accomplish goals set for time and cost metrics, as well as accomplish set quality performance indicators and develop a solution that is effective for the client (Dixon, 2000). The trio of factors often used to determine project success is referred to as the 'Iron Triangle' with cost, time, and functionality (or scope) as the three features (Gemünden, 2015). The Iron Triangle is often criticized however, for neglecting certain perspectives and for being too focused on the economic benefits and functionality of projects (Gemünden, 2015). The added metric of quality is one that was brought forth by (Hossein, Hajiagha, Amoozad, Shide, & Hashemi, 2014) in their journal article. It has become an increasingly important factor as project management has developed as a field, since it addresses some of the neglected aspects of the traditional Iron Triangle (Hossein et al., 2014). These neglected aspects include strategy, the wide variety of stakeholders involved in projects, and the production of beneficial and informative outcomes (Gemünden, 2015).

Project management achieves this success through a number of actions. These actions being: defining what has to be accomplished; developing a plan to achieve these initiatives and following through with the plan while also tracking progress; using appropriate project management techniques and tools throughout the project lifecycle; and employing skilled individuals to take responsibility of the change initiative the project is directed towards (Dixon, 2000). Project management, including the leadership aspect of this profession, plays a large role in the success or failure of projects (The Standish Group, 2013a). This means that project managers, or those individuals in charge of managing projects regardless of their title, need to be adept at both planning and executing plans (The Standish Group, 2013a). They also need to have excellent judgement skills and diplomacy, exceptional communication skills, the ability to motivate teams of individuals, and finally, the ability to recognise team members' strengths and delegate project tasks appropriately (The Standish Group, 2013a). With an individual with this type of expertise playing a role in project management, projects have an increased chance of coming to a successful conclusion (Dixon, 2000).

Many organisations undertake projects, and whether or not they have an official project manager or a department that deals specifically with projects, the importance of managing these projects properly is apparent. Ideally, project management is undertaken by a project manager who has the experience and expertise to effectively lead projects, however, this is not always possible (Dixon, 2000). With projects so widely used throughout organisations, including in the manufacturing and building materials industry, it is crucial for project management to be well-understood throughout all levels of an organisation (Loo, 2002).

Projects are equally as important for SMEs, as they are for larger corporate organisations. In fact, it may be argued that projects are more prevalent in, and crucial to the success of, SMEs than in traditionally structured, large corporate organisations (Semrau, Ambos, & Kraus, 2016; Tidor, Gelmereanu, Baru, & Morar, 2012). This is simply due to the fact that SMEs are generally more flexible organisations, where entrepreneurial capabilities are often more highly valued than in traditionally structured corporate entities (Semrau et al., 2016; Tidor et al., 2012). SMEs tend to have many smaller projects occurring at once, often with individuals involved in multiple projects at the same time due to the smaller number of people employed by SMEs (The Standish Group, 2013b). One of the strengths of project management is how versatile and adaptable it can be to fit any situation, which is in part what makes it such a valuable management tool for SMEs (Razavi, Mahdiraji, & Hashemi, 2014).

Innovation, which is intricately tied together with the concept of project management, has been considered a highly important factor for the growth, development, and ultimately the survival of SMEs (Raymond et al., 2013). In the manufacturing industry, the ability to innovate has been deemed one of the most important strategic capabilities for SMEs specifically (Raymond et al., 2013). Given that project management is one of the crucial implements used to foster innovation, this by extension highlights the incredible importance of both projects and project management to the manufacturing industry and to SMEs.

Leadership also plays a large role in the success of project management. This is due to the fact that effective leadership skills are a critical part of being an effective project manager. A project leader and a project management are two terms that are sometimes used interchangeably within the context of project management because of how crucial the role of effective leadership is in a management context.

The role of leadership is often shared throughout the hierarchy of an organisation, and depending upon the organisational culture, can even be shared among the project team members as well (Mueller, 2015). This means that although a project manager may have the sole leadership role over the project, this is not always the case.

According to a paper written by Robert Loo, there are three key competencies associated with project management, those being leadership competencies such as change leadership; functional competencies such as human resource management and technical aspects; and personal competencies such as the ability to motivate others (Loo, 2002). In a study conducted on a random selection of Canadian organisations in Alberta, the top project management competencies for organisations were technical aspects and people related aspects (Loo, 2002). Technical competencies include abilities such as integrated project management systems, effective planning, and management of contracts (Loo, 2002). On the flip side, some people-related competencies include having high-calibre project teams, high levels of stakeholder participation, customer satisfaction, and effective communication skills (Loo, 2002).

Since projects are one of the key means for organisations to further develop their overall strategic objectives (Kopmann et al., 2017), project management done properly is a useful way for organisations to ensure that their projects run smoothly and are aligned with the company's over-arching strategic goals. Often, projects will be enacted for new product or process development initiatives, or they may pertain to the restructuring of a system or process within the organisation (Miguel, 2008). Every project

will have a specific purpose within the organisation's strategy, and therefore might take the form of any of these initiatives.

It is possible for projects to be put on a waiting list or even altogether terminated if they do not meet the requirements for an organisation's strategy goals (Miguel, 2008; Neuenfeldt, Paris, & Funke, 2014). Through the employment of project management, an attempt can be made to avoid this by directing and leading active projects so that they continue to support strategic initiatives. Projects are one of the main methods that organizations can employ to foster and advance their global strategies and objectives (Kopmann et al., 2017). Thus, with the influx of organizations structured to function specifically around projects (Kopmann et al., 2017), effective project management is becoming an even more important skill to master.

- Portfolio management

While assets are the most commonly known items portfolio management organises, they are not the only ones. The term can refer to a number of different groupings of items or ideas depending upon the context, the industry, and the firm in question. For example, portfolio management can refer to the management of a portfolio of projects, products, and technologies among other things (Kaul, 2012; Kopmann et al., 2017; Neuenfeldt et al., 2014).

In the context of projects, portfolio management is used to organise the various projects a company is looking to carry out, to prioritize them and to maintain them so that the group of projects undertaken aligns with the overall strategy of the organisation (Kopmann et al., 2017). Project portfolio management has three particular features which help to achieve the management of project groups and further the business goals of the organisation (Oliveira & Rozenfeld, 2010). These features are the presence of unknown information, having multiple goals, and having a variety of interrelated projects (Oliveira & Rozenfeld, 2010). Using these three features as indicators, one can recognise project portfolio management, especially as not to be confused with the idea of project management (Oliveira & Rozenfeld, 2010).

Throughout the years since portfolio management has been employed and researched, it has had several different definitions. Early on, the term was used to simply describe the process of project selection, but later on this blossomed to include the prioritization of products for development as well (Miguel, 2008). Portfolio management has more recently come to represent an integrated project management tool (Miguel, 2008). This being said, it is still viewed as one of the weaker approaches utilised to manage product development (Miguel, 2008).

In the manufacturing sector, the decisions coming out of portfolio management often effect the business internally, rather than having a more external effect such as is seen in the marketing sector (Neuenfeldt et al., 2014). Both internal and external effects of portfolio management are important to a business, and so regardless of where a firm is impacted, portfolio management should be addressed appropriately. According to (Oliveira & Rozenfeld, 2010), and reiterated in the article written by Oliveira and Rozenfed in 2010, portfolio management has four main goals that it should attain; those being:

1) The maximisation of portfolio value;
2) Portfolio balancing;
3) Strategic alignment;
4) Resource allocation (Oliveira & Rozenfeld, 2010).

These four main goals together will lead to an optimum portfolio of projects and products (Oliveira & Rozenfeld, 2010). While these four objectives will work against each other at times, it will be crucial for the four elements to be considered when developing and maintaining portfolios so that the main aim of portfolio management can be achieved (Oliveira & Rozenfeld, 2010). Overall, product portfolio management is a dynamic decision-making process aimed at both managing and prioritizing items, and this is one of the most critical tasks that an organisation can undertake to ensure they achieve success (Neuenfeldt et al., 2014).

The employment of project portfolio management is also very intertwined with the idea of product portfolio management. It aligns the management of individual projects with the management of the business overall; both its strategies and day-to-day operations (Oliveira & Rozenfeld, 2010). As portfolio management aims to look at a larger grouping of items, project portfolio management does not look simply at the management of a single project but instead covers the management and organisation of a large number of projects at once (Oliveira & Rozenfeld, 2010).

Often projects being monitored by project portfolio management will be connected with new product development initiatives, product offering prioritisation, and other product portfolio management initiatives as well (Miguel, 2008). As is stated by Miguel, ‘portfolio management is a process in which projects for the development of products are continually evaluated, selected, and prioritized’ (Miguel, 2008). This eloquently phrased explanation highlights how incredibly interconnected the two concepts can be, given the right industry and context.

One of the important topics regarding portfolio management is the idea of strategic alignment (Miguel, 2008). Strategic alignment with the organisational strategy for portfolios of projects and products is

important because these portfolios represent the current and future direction of the company and are a strategic tool used to further initiatives the organisation wishes to pursue (Kopmann et al., 2017). If items in a company portfolio do not match their stated overall strategic direction, then they will have a much harder time attaining that goal.

While it is important to have a portfolio that is full of useful projects to forward company objectives, it is equally important to have a portfolio that is balanced (Miguel, 2008). Contribution levels of each portfolio item can therefore be ranked and based on a three-goal system to ensure relevance of the portfolio (Neuenfeldt et al., 2014). These three goals are the maximization of value, balance of the project list and available materials, and orientation to implement macro planning goals (Neuenfeldt et al., 2014). This balanced portfolio would then include a diverse set of projects to ensure that resources can be spread out equitably, and where both the short-term and the longer-term aims are accounted for (Miguel, 2008).

- Innovation management

In the manufacturing industry, there are two main types of innovation that are employed. These are product innovation and process innovation, and while they are similar in terms of the core tenant of innovation, which is to improve and develop something new, they are slightly different (Raymond et al., 2013). Product innovation can be defined as "the introduction ... of a product whose technological characteristics or intended uses differ significantly from those of previously produced products or an existing product whose performance has been significantly enhanced or upgraded" (Raymond et al., 2013). This compared to process innovation which can be defined as "the adoption of technologically new or significantly improved production methods" (Raymond et al., 2013).

Innovation, in general, has become of increasing importance to a wide range of organisations, and yet innovation management is not a strategy that has been well-employed by managers (S. S. Erzurumlu, 2017). From these definitions of innovation, it follows that innovation management is then the field dedicated to managing innovation and innovative technologies. Innovation management, in more explanatory terms is the "creation of preconditions to promote human creativity but also as a process to foster the application of knowledge" (Mavroeidis & Tarnawska, 2016).

Technology management seeks to maintain and improve the competitive advantage of an organisation through technology, and while it is a term often used interchangeably with innovation management, it is not as comprehensive of a management technique nor are the two management techniques the same thing (Igartua et al., 2010).

Often, especially in start-ups and smaller organisations, the focus of innovation is on the proof of concept for the innovative idea, instead of being focused on the consumer and whether or not there is a market (S. S. Erzurumlu, 2017). This may play a role in why innovation management is not done very well, as managers are not always taking into account the customer when innovating products and processes.

Due to this focus on the technological innovations a company has achieved or wishes to achieve, there has been a lack of emphasis on innovation management as a whole system (Mcadam et al., 2007). This means that broader applications of innovation are not incorporated as thoroughly by the organisation and they miss opportunities to improve on learning processes and other aspects of the business (Mcadam et al., 2007). In SMEs this is a problem since they are often founded on a technological innovation which they put quite a bit of emphasis on (Mcadam et al., 2007).

Without the necessary funds, skills, training or knowledge, and with the mindset that innovation is supposed to be an innate process, SMEs often lack the intention to systematically incorporate innovation into their day-to-day business practices and overarching strategies (Mcadam et al., 2007). Unfortunately, this narrow focus adoption of innovation can actually lead to organisations that are the opposite of innovative through learning programs that simply reinforce the currently accepted beliefs (Mcadam et al., 2007).

The European Commission (2004) states that innovation management is a discipline that requires design. It involves focusing on the goals and the mission of the organisation, searching methodically for opportunities and then determining if these opportunities fit with the strategic direction of the firm. Therefore, organisations who do not employ innovation across the various functions of their organisation in a methodical and thought-through manner, are not using innovation management to improve their business.

There are many tools and techniques that comprise innovation management, all of which can help businesses' performance (Mavroeidis & Tarnawska, 2016). These tools and techniques help to support the process of innovation so that organisations can systematically meet any new market challenges (Mavroeidis & Tarnawska, 2016). For example, some of these tools include innovation strategies and processes, portfolio management and project management, organisational design, leadership and company culture, and the use of technology to name a few (Mavroeidis & Tarnawska, 2016). In depth research has been performed on most of these tools throughout the history of management practices, but one problem often faced for managers trying to utilise project management is that this research has

often focused on each individual tool rather than bringing them together in a cohesive manner (Igartua et al., 2010). This has made it difficult for innovation management as a whole to be understood and employed effectively by managers (Igartua et al., 2010).

As is apparent from the vast toolkit used to achieve innovation management, it is a broad scoped management approach that encompasses many functional units of a business that includes everything from human resources, to marketing, to external relations and management (Mavroeidis & Tarnawska, 2016). Innovation presents a huge opportunity for organisations to derive business value, but as very few managers feel they have mastered this ability to harness innovation management's full potential, it also poses quite a challenge to organisations (Igartua et al., 2010).

2.2.2.Interrelations and distinctions among project and portfolio management

Project management looks at individual projects and how each one should be organised, led, and how each one fits into the overall strategy of the organisation. The biggest difference between this and portfolio management is the lens that is used. Portfolio management looks at a grouping of related items and their management, so even when comparing project portfolio management specifically, there is a broader group of items being considered and managed. Essentially, project management is a more fine-tuned, or specific, tool in relation to project portfolio management.

Project portfolio management looks at a group of interrelated projects to achieve business objectives (Oliveira & Rozenfeld, 2010). While project management aims to manage intraspecific project features to further business objectives, project-based portfolio management aims to manage the interspecific project related features. From this main difference between the two, there exist many other smaller subtleties that can be explored and analysed.

In terms of their use under the broader umbrella of innovation management, they have slightly different purposes towards forwarding business objectives, as well as different ways of approaching problems to accomplish objectives. Portfolio management is often performed by managers in the research and development (R&D) sector of organisations, necessitating a higher-level thinking to achieve a balanced group of projects, technologies, and products that best suit the needs of the company (Igartua et al., 2010). The field requires open and flexible attitudes which are supported by strong management, and there are many matrixes and frameworks which can be adopted to aid with these big-picture decisions (Igartua et al., 2010).

On the other hand, project management deals more with the on-the-ground, gritty details of projects and how to best implement changes to forward organisation strategic goals. There are generally high levels of risk associated with projects, especially those that are directly dealing with innovating projects or processes for an organisation (Igartua et al., 2010). The specifics of implementing projects can be multifaceted problems which require the individuals who manage them to think on their feet, be strong change leaders, motivate their project team members, and deal with a multitude of issues and perspectives at the same time.

Having said this, project portfolio management and project management are incredibly interrelated. This becomes even more apparent when discussing innovation management which encompasses both project and portfolio level management. If reviewed from a hierarchal standpoint in terms of scope, project management would be at the bottom as it has the smallest scope. Next up the ladder would be portfolio management – specifically project portfolio management – as it uses a broader scope which looks at managing the interrelations of projects rather than at the management of specific projects. Finally, innovation management would be at the top of the hierarchy, as it employs both project and portfolio management among other tools and techniques in its quest to achieve business strategies and the goals of an organisation.

Both project management and project portfolio management are important drivers of innovation (Igartua et al., 2010). When both management techniques are employed together as a holistic system, they can be used to achieve the full potential of innovation within businesses. Employed consistently across projects in a company, this will aid in achieving a fully realised and systematic innovation culture, which will in turn help firms to grow.

Project management and portfolio management can, and should, be used in combination. For example, portfolio management is used to organise projects and help project managers and upper management in deciding which projects to pursue. Portfolio management is responsible for the prioritization, selection, and termination of projects, and it encompasses both projects that were initiated formally through strategy formulation as well as projects which evolved more organically and may not initially be as aligned with the overall company strategy (Kopmann et al., 2017). Project management can influence the decisions in portfolio management through guiding the direction of projects to ensure that they align with the strategic objectives of the organisation. Without proper project management, projects that were chosen because they originally appeared to be aligned with an organisation's strategic goals,

may get off-track throughout the lifespan of the project and end with a solution or final product that does not align at all with the organisation's long-term goals.

Portfolio management and project management can be used in conjunction to address the different levels of success related to projects. There exist three levels of success with regards to projects. These are: project management success which addresses whether the project was done right, project success which addresses whether the right project was done, and consistent project success which addresses whether the right projects are done right on a consistent basis (Stratton, 2011). Whether a project is done right – or project management success – as well as doing projects right consistently, falls under the jurisdiction of project managers and their use of project management techniques and tools (Stratton, 2011). On the other hand, ensuring that the right projects are done – or project success – and ensuring the right projects are done consistently, falls under the jurisdiction of portfolio management (Stratton, 2011). Portfolio management is a relatively new field of research in the world of projects compared with research on project management (Stratton, 2011).

One last key similarity between project and portfolio management exists in their need for governance (Stratton, 2011). This is a key similarity because having some form of governance to approve which projects get moved forward and how projects will be run guarantees that there is always a 'watchdog', if you will, to ensure that projects are performed properly, meeting organisational goals and forwarding strategies (Stratton, 2011). The actual form of governance for project and portfolio management may differ, however.

In project management governance may come in the form of a project manager, whose role it is to lead the team members through the project to achieve a specified objective (Dixon, 2000; The Standish Group, 2013b). Project managers may also have oversight from higher levels of management with directives on the purpose of projects and what strategic initiatives they are trying to achieve. For portfolio management, governance can come in a variety of forms, based on the organisational context and structure, the types of projects being assessed, and the role the governance body is supposed to perform within the organisation (Stratton, 2011). Examples of governance forms that can be used in companies for assessing project portfolios are committees, review boards, project or organisation sponsors, or general governance boards (Stratton, 2011).

In SMEs, the reality of interrelation between project and portfolio management is equally important, and in fact, the lines between the two may be more blurred. Since SMEs have fewer resources, both financially, physically, and in terms of employees (OECD, 1997), they may end up with overlaps in

management, and in departments and their roles. Also, as SMEs are more often entrepreneurially minded (Semrau et al., 2016), they rely more on innovations and therefore projects and the various forms of management associated with projects to forward their businesses and achieve market share and success for their organisation (S. S. Erzurumlu, 2017).

2.2.3.Impact of project and portfolio management on business

Portfolio management in relation to projects has three main phases, which have been described in the literature (Kopmann et al., 2017). These three processes form the foundation through which portfolio management is able to realize the strategies of businesses (Kopmann et al., 2017). The first phase is in regard to the prioritization and selection of projects, the second phase deals with resource allocation both to projects and across the different projects, while the third phase is about re-evaluating the portfolio (Kopmann et al., 2017). In this third phase, re-evaluation can occur, for example, through: terminating projects, re-prioritizing them and reallocating resources (Kopmann et al., 2017). This third phase is often referred to as 'Project Steering', and together with the first two stages, it contributes to project investment decision coordination, balancing of risks and resources, as well as maximising the value of the business's project portfolio (Kopmann et al., 2017).

As a way to bridge the divide between formulation of strategies and the actual implementation process, portfolio management as a process helps to translate a high-level strategy into a more tangible route for executing projects (Kopmann et al., 2017). For strategy projects which emerge more organically, it also provides the oversight and guidance to determine where projects will head and whether or not they will be kept on in order to aid in forwarding overall strategic objectives of the organisation. Essentially, the portfolio of projects undertaken by a company represents the strategies they are pursuing (Kopmann et al., 2017). This is because the sum of all of the projects the company has invested in will shape their future in terms of the organisational structure, the processes employed and the products being designed (Kopmann et al., 2017).

The next step in strategy formulation and implementation comes from project management. Once a strategically chosen portfolio of projects has been compiled in the portfolio management stage, project management techniques and tools can be used by project managers to make certain that projects stay on track. Projects are highly useful innovation tools that many organisations rely on to enact different steps towards their business strategies as well as to solve problems (Huff, 2016b). As mentioned previously, without project management, projects that may have initially been chosen for their usefulness to be included in a project portfolio can get off-track from their original objectives.

Project management therefore acts as a guidance tool to ensure projects are following their intended route in terms of not only cost and time, but also functionality for the organization throughout the project's lifecycle. Just as project management helps to ensure projects are done right to strengthen strategic initiatives of the company, portfolio management helps to ensure that the right projects are started and funded (Stratton, 2011). Through the interconnected steps of portfolio and project management, organizations have a better chance at guarantying the most benefit out of the countless possible project alternatives and combinations.

Since projects help to shape an organisation's future direction, success of projects is highly important to companies. Unfortunately, the failure rates of projects are still quite high (The Standish Group, 2009). Projects can both fail completely and partially, and while failing completely is objectively worse for an organisation, failing partially can still be highly detrimental (The Standish Group, 2009). Projects are deemed to have failed completely when they are either terminated or simply never reach completion, or when they do not result in a solution that is useful for the organisation and/or the client (The Standish Group, 2009). Projects can similarly face partial failure, known also as being 'challenged', which occurs when they are completed but do not have all of the required features. For example, if they were not completed on time, if they were not completed on budget, or if they were completed but missing some key functional components (The Standish Group, 2009) that would have been beneficial for solving the issue at hand and forwarding company initiatives.

One way for organisations to better avoid project failure is to use both project management and portfolio management to address the different levels of success previously mentioned. By employing both project management and project portfolio management in addressing the project management and project levels of success, managers and organisations can better ensure that they are consistently achieving success within their projects to forward their strategic goals. Both portfolio management and project management must be employed rigorously and consistently if they wish to make a real difference in the organisation.

The interaction between project management and project portfolio management is especially important for project-based companies since projects are the main function for these businesses towards achieving goals – even in day-to-day activities. Project-based organisations are still a relatively new occurrence and they are struggling to implement structure, knowledge integration, and strategies (Thiry & Deguire, 2007). They need to use tools and techniques that facilitate implementation of strategies and structure, such as the oversight and forethought offered by portfolio management and project

management (Thiry & Deguire, 2007). This format of project-based organisations can refer simply to business units, or to entire businesses and is used because it is believed they have the ability to overcome barriers to change and innovation since they are temporary structures and constantly changing. This flexible structure matches better with the generally more entrepreneurial and adaptable cultures found in SMEs (Semrau et al., 2016; Tidor et al., 2012), and it therefore occurs more often within SMEs (Banaszak et al., 2009).

2.2.4.Linking project management to innovation within SMEs

Innovation - as an applicable concept - within SMEs has been a big challenge over the past years and still is. SMEs mostly act in small markets or only in one area of the market. This is one of many challenges that SMEs face while moving forward on their innovation adventure. Firms, therefore, spend a great deal of time and energy developing the capability to innovate and one of the main ways they innovate is through new product development. Other challenges come associated with the concept of project management and portfolio management, where these companies are required to select the best project portfolio that aligns with their long-term strategy taking into consideration the resources available for each project and its priority level according to the prioritization ladder set by the company.

This is what was clearly mentioned in a scientific study published by a Swedish university discussing the issue of project portfolio selection. It is mentioned that the selection of the right set of projects is considered critical for organizations to successfully achieve their competitive advantages and corporate strategies. Due to limited resources and dynamic changes in business environment, this kind of selection is quite challenging for organizations.

Not to forget the fact that project management can play a significant role in facilitating the contribution of SMEs in their economies, but SMEs require less bureaucratic forms of project management than those used by larger, traditional organizations, and thus SMEs should apply the best they can in the field of project and portfolio management.

Getting a bit deeper into the definition of project portfolio, it is important to state what was published in 2001 regarding this matter: project portfolio management and project portfolio selection is formally defined as a dynamic decision process whereby a business's list of active projects is constantly updated, revised. In this process new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed, or de-prioritized and resources are allocated and reallocated to active projects (Cooper, Edgett, & Kleinschmidt, 2001). Project portfolio selection evidently contributes to success of project portfolio management and more importantly to the achievement of corporate strategy

(Le and Nguyen, 2007). This is a main field that all SMEs should master, overcoming their barriers, and achieving the best they can out of it. Also, it happens to be one of the most important fields in our era for researchers to study, analyze, discuss, test, and finally draw new adjusted formulas, models, and frameworks in order to help support the SMEs and accordingly the whole economy.

Although the research on innovation tends to focus primarily on large firms, innovation is at least as important for small firms. The strategic position of a small company depends on its ability to offer high-quality products and services that fit the needs of the market. Therefore, a permanent flow of product innovations is significantly important for small firms (Simon et al., 2000).

Due to the increasingly difficulty for SMEs to compete with larger companies, as these companies have much lower resource costs than SMEs, attention was shed on innovation as to become a vital competitive advantage, shifting the competitive strategy from price to novel products and services that competitors cannot provide to make customers, whether end-users or intermediaries, to go the extra-mile and pay a premium price (Susman, 2007b). Developing this ability to innovate requires knowledge and competence to support a strategic and visionary framework associated with organizational structures, managerial systems, processes and mindset (Lawlor, O'Donoghue, Wafer, & Commins, 2015). Based on multiple literature, innovation can be the aftermath of multiple pathways that resulted from research that is being conducted since the late 1900s. Some of the main pathways that come in this context and show the procedures followed and processes that have been worked on include but not limited to:

1. Innovation through a firm's basic capabilities

According to Zawislak, Gamarra, Alves, Barbieux and Reichert (2014) four capabilities contribute to a firm's innovative performance. Innovation goes beyond development capabilities and even firms with weak development capabilities can be of superior performance if they have an advantage in other capabilities such as operations management and transaction. The latter explains how firms that emerge from countries where technological innovation is not so frequent can succeed in the marketplace. Thus, firms necessarily need a minimum of four capabilities with superiority in performance depending on the predominance in one of them. The first is development capabilities that allow a new value being imagined and built to be transacted in the market, applied to solve real problems faced by the specific market. The technological capabilities should allow generating, adapting and developing new technologies that would help differentiate the firm from its competitors. Technological ability can be defined as to use technological resources from patents, skilled engineers, databases, etc., in addition to methods, processes, and techniques for innovative offering (Afuah, 2002). The second is operational

capability because although imagining and developing new products is essential for a firm's survival in the market, any firm also needs the ability to turn the technological outcome into operations for commercial production, which is achieved using operations capabilities. A definition for operational capability is the firm's ability to produce quality products that are reliable and have a competitive cost. To make decisions for production technologies to be used, the firm has to study its operations capability and while development capability deals with technologies that are constantly changing, operations capability deals with establishing routines, stability, efficiency and standardization being the key features for production, and changes within this capability occurs by learning from doing. Even with developmental capabilities and operational capabilities, firms acquire skills that combine internal capabilities coherently and that is where management capability (the third one) arises. Management capability's importance was noticed especially with large business enterprises emerging in the early 20th century. Through planning and coordination, managerial work has been found to be critical in driving the growth of firms, because management capability allows companies to compete with other national and international markets through integrating and coordinating the different areas, allowing for economies of scale and scope to be achieved. As operations capability depend on technical knowledge to be applied on routines, management capability depends on multiple abilities that would be applied in flexibly solving problems. Finally, transaction capability (the fourth one) is also needed for the functioning of any firm. Transaction capabilities are essential because any firm will need to transact its good in the market so despite how good a firm can be in the three prior capabilities, the absence of transaction in the market does not justify a firm being an economic agent. This capability is represented by multiple abilities that include both knowledge and routines that the firm uses to help reduce its marketing cost, trading, logistics and distribution. Therefore, transaction capability is the link between the firm and the external environment through purchasing and selling.

2. Innovation through technology

A simple, yet useful way to segment companies, based on their technological innovation, is through their level of research and engineering capability. Based on that, a simple hierarchy can be proposed as follows:

Level 4: Research Performers;

Level 3: Technological Competent;

Level 2: Minimum-Capability Companies;

Level 1: Low-Technology SMEs.

In this segmentation, suggested by suggested by Arnold and Thuriaux (1997), development of firms can allow for four distinct levels. At the bottom level (level 1), Arnold considers these companies lacking meaningful capability, and at the next level (level 2) the Minimum-Capability SMEs hire one engineer, which would be the person able to speak the technology language, to monitor and understand technological changes occurring outside the firm. SMEs at both of these levels are not likely to have much contact with universities because they do not share a common interest. Among the OECD countries, many firms belong to the third level being able to carry on development work and have a specialized innovation or development function and would hire multiple engineers. The highest level (level 4) – Research performers – includes firms of two types, the first sub-type being very large companies with research and development capabilities with the strength and vision for both the long-term and immediate future, while the second sub-type being technology-based companies such as universities and research spinoffs that mainly perform research and are usually taken by larger companies if they are successful. Both research performers sub-types tend to communicate with universities easily while third-level firms often face difficulties doing so.

Many support programs and practices for SMEs have been implemented in many countries, such as the case of the IRAP (Atkinson, 2016) in Canada. These programs focus on technology acceleration and practices that would promote technology adoption by SMEs, conducting audits to identify opportunities for improving SMEs manufacturing and operations, in addition to supporting technology transfer, performing R&D (research and development), indirect collaboration with other firms and research laboratories, and engaging SMEs in collaborative research and development. Technology acceleration funding mechanisms include providing direct research and development grants and loans and innovation vouchers to help SME manufacturers develop new products and innovative efforts in addition to funding joint research programs. Many countries, including Canada, provide innovation vouchers to helping startup innovation activities within SMEs and connect them with researchers at other companies or universities. Moreover, 70% of countries examined by the information technology and innovative foundation (Canada, United Kingdom, Japan, Germany, Australia, Korea, Argentina, Spain, Austria, China, and the United States) provide innovation related funding directly to the manufacturers. These programs also provide next-generation technical assistance for manufacturers including:

- Providing export assistance and training;
- Promoting energy-efficient manufacturing;
- Promoting continuous productivity improvement;
- Providing information about how to acquire standards and certifications;

- ❖ Teaching SMEs about the role of design and manufacturing.

For example, the MEP (Manufacturing Extension Partnership) in the United States focuses on providing formal mechanisms for coaching innovation skills and have also developed a web portal called the National Innovation Marketplace to facilitate relationships between those seeking innovations and those developing it. In Canada, as mentioned above, the Industrial Research Assistance Program, which is administered under the NRC (National Research Council), is the main technology program to support SME manufacturers, as whose mission is to generate wealth for Canada through innovation in technology. The IRAP basically provides technology advice and assistance in addition to services to aid SMEs develop their capacity to innovate. The IRAP works with SMEs in any industry sector including manufacturing and high-tech services, it delivers its services through a network of 220 industrial technology advisors located in 150 Regional Offices in 90 communities throughout industrial Canada. Technology advisors mainly focus on technology development innovation and new product development; in addition, it plays a role in connecting technologies and knowledge between SMEs and Canadian universities (Ezell & Robert, 2011).

3. Innovation through design

Beyond the technological pathway to innovation, a design-driven approach fosters organizational learning through the integration of design-thinking. It has been proven that when companies take advantage of designer-like thinking across the business model, they cultivate dynamic cultures, more desirable products and services, faster growth, and passionate customers (Lawlor et al., 2015). In addition, companies that invest and design tend to be more innovative, profitable and of fast growth than companies that do not, which is considered as a strong direct correlation between days of design and national competitiveness (European Commission, 2009).

2.2.5.Highlights, relationships and impacts of portfolio and innovation management integration

As evidenced earlier, innovation management is an umbrella style of management that incorporates a variety of different tools and techniques. Of the tools it incorporates, project management and portfolio management are both key (Mavroeidis & Tarnawska, 2016). Thus, portfolio management and innovation management are intrinsically linked together. When discussing innovation management, it is significant to also discuss portfolio management as this is one of many tools that innovation management suggests using to achieve a more holistic management system.

In early-stage innovation however, project management cannot always account for all of the chaos occurring (Mathews, 2013). This is where portfolio management comes in, with its metric and analytical techniques for systematically revealing unique insights and giving meaning to the management process itself (Mathews, 2013).

Innovation initiatives in SMEs are often over-reliant on the technological innovation side of things, where they use advances in technology and in specific product improvements to continue to keep their companies competitive (Mcadam et al., 2007). While this is important, there are other portions of a business that can use innovation to help advance strategic goals and maintain the organisation's competitive edge. For example, innovation in training and learning programs, in functional unit structures and the organisational culture, in business processes, and in company-wide procedures, are all other ways for an organisation to incorporate innovation into their company in order to enhance it (Mcadam et al., 2007).

Innovation should be a tool that is used systematically throughout all functional units and processes of an organisation (Mcadam et al., 2007). It is a dynamic and complex tool that when implemented to a fuller extent and integrated into all aspects of an organisation, can make a much bigger difference in a company's success (Mcadam et al., 2007). As portfolio management can be used to manage everything from processes, to technologies, to new product initiatives, it stands as one of the most effective ways to systematically integrate innovation throughout a company (Kaul, 2012; Kopmann et al., 2017; Neuenfeldt et al., 2014).

The roles of institutions and firms with regards to the innovation process are intricately woven together, with some of the traditional roles overlapping (Mavroeidis & Tarnawska, 2016). This implies that while companies may rely on institutions to perform the basic and applied research needed for them to commence experimental development of solutions, sometimes these roles are reversed or one domain takes up a combination of roles (Mavroeidis & Tarnawska, 2016). For small and medium sized organisations, portfolio management can help to keep track of all of the various initiatives that the organisation is associated with. This also includes initiatives where the SME is not the one performing all or any of the development functions. As SMEs are known to employ more projects – albeit smaller ones (The Standish Group, 2013b) - the ability to manage, organise, prioritise, and keep track of the myriad of projects, as well as which organisation is managing them, is a useful tool to keep everyone in the company knowledgeable about what projects and issues are actually being addressed.

With Innovation Portfolio Management, or IPM as it is also sometimes referred to, the idea, however, is not just to create and manage an effective portfolio, but to do this with new activities and in new areas (Mathews, 2013) The added challenge to this is that these new areas and activities are often still emergent ideas that have not been fully developed so the achievement of success in their goals is less certain than in areas that have been tried by true practices (Mathews, 2013). Of course, the rewards if the portfolio initiatives do succeed are also much higher (Mathews, 2013).

This new approach to innovation has gone through many stages of deeper understanding throughout its existence (Xu et al., 2007). These four stages are as follows:

1) Products portfolio innovation;
2) Technology portfolio innovation;
3) Portfolios of various innovations;
4) Portfolio innovation based on core competencies (Xu et al., 2007).

According to the study done by Xu et al. (2007), portfolio innovation theory is currently the dominant innovation management technique being employed. While this particular study was conducted with a focus on Asian countries and the Asian market, it drew from literature and companies from all over the world including North America.

The entanglement between portfolio management and innovation management is quite apparent when discussing portfolio innovation management as it is quite literally a mixture of the two disciplines. The cross-sectional discipline can therefore be viewed as more of an innovation management technique that utilises portfolios, or as more of a portfolio management technique that incorporates innovation. Depending upon the interpretation taken up by the company, the emphasis on the separate disciplines will differ slightly.

From the study performed by Xu et al. (2007), the connection between portfolio management and innovation management as an integrated theory was discussed and analysed. Innovation can be viewed as a technique weaved into the processes of portfolio management in a variety of ways. These innovation viewpoints, or techniques, are paired up and counteract and interact with each other. From this standpoint, there are a minimum of five portfolio interactions that integrate innovation. All five of the forms deal with the coordination of various innovation techniques and practices. The forms are as follows:

1) Coordination between process innovation and product innovation;
2) Coordination between radical innovation and incremental innovation;

3) Coordination between the benefits of implicit innovation and the benefits of explicit innovation;
4) Coordination between technology innovation and organisational culture innovation; and
5) Independent internal innovation and cooperative external innovation.

From these five forms, or interconnections, innovation can be addressed as a holistic system with various elements that can work together and against one another (Xu et al., 2007).

Overall, innovation management and portfolio management employed holistically is beneficial to organisations in that it helps to drive change in firms and helps them to achieve goals. The structure and systematic organisation of portfolio management balances well with the creativity and ingenuity of innovative solutions to help companies achieve these goals and retain a competitive advantage in their industry. Purposeful implementation of one or the other management technique will still be beneficial to organisations, especially since they are interconnected enough that there will always be some of both occurring when one is employed. This being said, their combined power is a bigger driver for success than either of the two implemented on their own.

2.2.6.Importance of innovation in portfolio management

While innovation management is not considered a component of portfolio management that does not mean that innovation itself is not a component of portfolio management. In fact, innovation is intrinsic to portfolio management as it plays a role in a company's ability to change and grow their business. Looking towards the future is one of the main objectives in portfolio management, and without innovation a company would have very little need to organise projects as there would be much fewer projects to implement.

Innovation is about change, about thinking in unique and interesting ways to solve solutions and move companies into the future. Innovation is at the heart of why projects exist in the first place, since projects exist as a structural format to solve problems and develop solutions and new products or processes. If innovation was not used in businesses, and fewer projects were therefore in existence, portfolio management, in manufacturing firms especially, would be of very little use.

In Table 1, each form of innovation has been described for further understanding, along with a description of how it fits in and its benefits to portfolio management.

Table 1: Innovation techniques in portfolio management

Innovation technique	Description	Fit with Portfolio Management
Product Innovation	"The implementation/ commercialisation of a product with improved performance characteristics such as to deliver objectively new or improved services to the consumer" (OECD, 2005b).	In manufacturing firms especially, product portfolios are common due to the nature of business the firms undertake (Neuenfeldt et al., 2014). Product innovation helps to ensure that product portfolios include new ideas that will keep the business competitive.
Process Innovation	"The implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software" (OECD, 2005b). It can also include other business processes within the organisation (Miguel, 2008).	Portfolios in organisations must address the processes used throughout their various business units. Without a focus on processes and upgrades in techniques and software, it becomes difficult for a company to truly stay competitive as they are not achieving balanced innovation techniques in their portfolios (Mcadam et al., 2007).
Radical Innovation	An innovation that has a significant impact on a market through for example changing the market structure, creating a new market, or rendering existing products obsolete (OECD, 2013a).	This would represent a large and impactful project initiative in a portfolio and would require a lot of the pooled resources of an SME. As a strategic initiative it would give the company quite a competitive advantage, and a portfolio that included a radical innovation may want to have other projects that are smaller and would require less resources to balance it out.
Incremental Innovation	Innovations that deal with existing products, processes, services etc. where the performance has been enhanced or upgraded in some way (OECD, 2013a).	Again, innovations of this type do not make as much of an impact on a firm's competitive advantage, but they can help to balance out a portfolio that has a main radical innovation to ensure other business functions are aligned and on track, or they can be used when a firm has a need for smaller-scale improvements.
Implicit Innovation	When it is not expressly laid out that innovation is the goal, and it is often simply implied.	When innovation is not expressed as the goal and is simply implied through the aim of improvement. It can be detrimental at times to project and portfolio management because team members will not have innovation in mind when developing and

Innovation technique	Description	Fit with Portfolio Management
		implementing changes which therefore limits their sense of agency and creativity (Grigoryan, Lebedeva, & Breugelmans, 2018).
Explicit Innovation	When innovation has been expressed as the goal of an initiative.	As opposed to implicit innovation in projects, the goal is to come up with innovative ideas and all of the team members are aware of this goal. As such, this type of innovation leads to implementing solutions with the ideas of creativity and change in mind.
Technology Innovation	"Innovations [comprising of] new products and processes and significant technological changes of products and processes" (OECD, 2001).	Innovations that improve technology are very important for SMEs, especially in the manufacturing industry where the products and technologies they use to create and deliver those products are crucial to their growth, productivity and overall success as a business (OECD, 2005c).
Organisational Culture Innovation	Innovations made in a firm's organisational culture, which can be defined as the beliefs, values, attitudes, and behaviours that together represent a company's working environment, organisational objective, and their vision (Twati & Gammack, 2006).	Organisational culture is crucial in the success of any kind of organisational change, and therefore innovation in its regard should play a role in every portfolio where organisational change (even in things like technological system upgrades) is the goal (Twati & Gammack, 2006).
Independent Internal Innovation	Innovation that occurs within a firm's boundaries, meaning that the organisation does not share the innovation with other firms, collaborate on research and development initiatives. It generally focuses on technology accumulation and breakthroughs (Wu, Su, & Wang, 2013).	This is the more traditional form of innovation between the external and internal comparisons (Wu et al., 2013) and would be incorporated into portfolio management as the portfolio items which are specific to the firm and not to be shared with others.
Cooperative External Innovation	Innovation that occurs outside of the firm's boundaries, for example with technology outsourcing, and joint initiatives between enterprises and between enterprises and academic or scientific research units (Wu et al., 2013).	This form of innovation makes portfolio management more difficult to manage as it encompasses projects that are not being done directly by the firm but will benefit the firm, as well as projects that are joint ventures. These still must be accounted for in portfolio management otherwise the firm risks overlap in projects and wasting resources.

Process innovation that is mentioned in the above table refers to an improvement in a process within the project. When you look at the management of portfolios, this comes into play in that organizations have to address processes that are used across their business units. Companies need to stay competitive with their portfolios to ensure they have a competitive advantage in their industry. To do this, innovations both in processes with techniques and technology becomes critical. Process Innovation is integral to the management of portfolios because it provides a way for companies to continually push for the best in their portfolios, without which companies could easily fall behind their competitors in the constant battle to take more of the industry share.

In SMEs, the use of innovation when conducting portfolio management is even more crucial due to how much SMEs rely on projects to stay competitive. Using these various forms of innovation to their advantage throughout their portfolio management would be a beneficial step. It would help towards fully integrating innovation into their processes and systematically throughout their organisations as well. SMEs tend to be structured in a way that is not only more conducive to a project based set up, but also to innovative capabilities. Structuring this innovation through incorporation into their project portfolios will only help to strengthen the innovative capabilities that help them to stay competitive and counteract against any vulnerabilities that they have compared to their larger competitors (Raymond et al., 2013).

2.3. Understanding the fact of some existing frameworks

Aside from the various techniques, strategies, and tools for project, portfolio, and innovation management that have been previously discussed throughout this thesis, there exist a variety of frameworks in place when it comes to innovation management, project management, and portfolio management. Some of these frameworks have been implemented by SMEs. While the research is not as complete on frameworks used by Canadian SMEs, there are also frameworks in place for larger organisations that can be easily adapted to SMEs, as well as frameworks in use by SMEs elsewhere in the world that can be adapted to the Canadian setting.

2.3.1.Background

Starting with project management, one approach used to address and implement it is knowledge management. This approach is about using the key decision-making components of data, information, knowledge, and individual and organisational processes to create value both internally and externally

(Liebowitz & Megbolugbe, 2003). It is a particularly useful approach given that SMEs tend not to be good at keeping track of previous projects (Todorović, Petrović, Mihić, Obradović, & Bushuyev, 2015a).

One framework dedicated to this is called the knowledge management framework. It consists of a number of layered steps which will achieve an integrated knowledge management adoption system throughout an organisation (Liebowitz & Megbolugbe, 2003). Figure 1: Knowledge Management Pyramid, is a visual representation of this framework. Each level of the pyramid will be discussed further below.

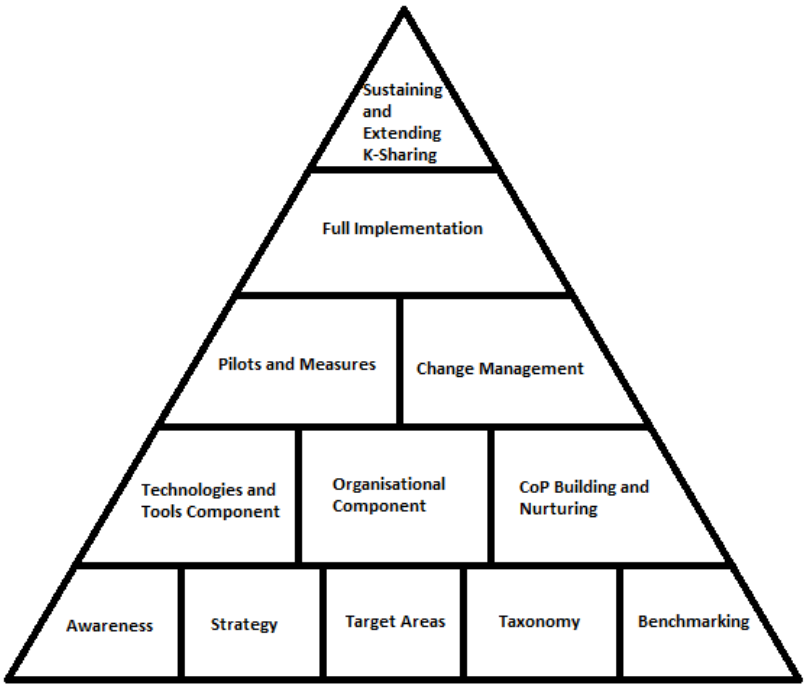

Figure 1: Knowledge management pyramid
(Liebowitz & Megbolugbe, 2003)

The bottom layer of the pyramid represents the first set of steps that should be taken to incorporate knowledge management into an organisation. These are knowledge management awareness, performing knowledge management external benchmarking to see what other companies are doing, developing a knowledge taxonomy which acts as a vocabulary and a structure on which to base the knowledge management system, developing a strategy for knowledge management, and identifying target areas for the best use of knowledge management activities (Liebowitz & Megbolugbe, 2003). The next level of steps in the knowledge management framework are selecting the appropriate knowledge management tools and techniques, developing an organisational infrastructure, and building and nurturing online Communities of Practice, or 'CoP' as it is referenced as in Figure 1 (Liebowitz &

Megbolugbe, 2003). After these steps have been achieved, the next layer of actions entails running and measuring pilot knowledge management programs and instituting these change management practices throughout the organisation (Liebowitz & Megbolugbe, 2003). Finally, knowledge management can be fully implemented and then continuously sustained and extended throughout the business culture (Liebowitz & Megbolugbe, 2003).

While this framework is more specific to the knowledge management portion of project management, there are other frameworks that incorporate knowledge management without being the main focus. One such framework was discussed by (Todorović, Petrović, Mihić, Obradović, & Bushuyev, 2015) in their article. The framework they presented was a more integrated framework for project success, which incorporated elements of knowledge management with other associated factors of project management. Their framework is called the Project Success Analysis Framework, and it works under the assumption that every project is dependent on the unique business environment, specific to the organisation in which it is implemented.

The aim of the framework is to outline steps that would allow for the efficient and consistent monitoring and evaluation of projects throughout the entirety of their lifecycles (Todorović et al., 2015a). It also aims to allow for systematic analysis of the entire project (Todorović et al., 2015a), bringing to mind similar goals outlined earlier with regards to project management. The framework is based on a number of models, concepts, and methods that have been developed previously and it brings them together into one cohesive and integrated concept.

Within this framework there are four independent steps, each of which builds off of the previous stage throughout the project management process. The four steps are as follows:

1) Definition of a Project's CSF's (Critical Success Factors);
2) Definition of a Project's KPI's (Key Performance Indicators);
3) Measuring Project success according to defined KPI's and documenting results of success measurement;
4) Final evaluation of project success and creation of the final project report.

Each of the steps has a particular purpose towards integrating knowledge and proper management techniques throughout the project lifecycle. An in-depth description of each of these steps will further explain how project management can be achieved and improved.

The first step, entitled 'Definition of a project's CSF's', is where the wider project environment is assessed (Todorović et al., 2015a). 'CSF' stands for the Critical Success Factors of an organisation

(Spalek, 2005), and a scanning of the environment, including analysing the external environment to the organisation where the project is being implemented, as well as the environment internal of the organisation taking on the project (Todorović et al., 2015a). Events surrounding the project or relating to the documentation of the project within the organisation must also be analysed. This includes the project itself and any related projects, processes, procedures, company rules and specifications, the availability of resources, technology and any support systems (Todorović et al., 2015a).

As scanning is occurring, the focus of the project has to remain on the main goal of the project, and incorporate effective project management to establish project plans, organise teams and ensure proper leadership, implementation of plans as well as monitoring and recording of the implementation process in order to achieve successful results (Todorović et al., 2015a). Conflict management, decision making, and managing risk must also be employed by project managers throughout this process (Todorović et al., 2015a).

An overview and an analysis of all of these elements allows for the generation of a comprehensive list of CSFs for a project (Todorović et al., 2015a). As not all of the CSFs will be necessary at every step of the project lifecycle, this step in the framework can be adopted visually through a lifecycle stage diagram where the previously identified CSFs can then be linked to each stage. It will also be important for project managers to describe the needed knowledge and task definitions to team members who are performing related activities (Todorović et al., 2015a). In this way, project team members can acquire the necessary skills and knowledge for particular tasks in order to execute them properly.

The second step, entitled 'Definition of a project's KPI's', is about looking towards the future and enhancing the decision-making process (Todorović et al., 2015a). KPI stands for 'Key Performance Indicator(s)' which are measurable values that demonstrate the effectiveness of a company at achieving their key business objectives and goals (Neely, Richards, Mills, Platts, & Bourne). In this stage, the importance of CSFs becomes clear as relying only on the success criteria of the Iron Triangle (Cost, Time, Quality) can lead to very narrow key performance indicators and success factors (Todorović et al., 2015a). To avoid this obstacle and instead achieve enhanced project performance, KPIs must take into account the project team, the organisation, and the environment the project will generate (Todorović et al., 2015a). After defining the CSFs specific to each lifecycle phase, measures must be defined for each CSF as the parameters for evaluating project success and then target levels must be established for each measure for project activities to reach (Todorović et al., 2015a).

The vast number of measurements used both for project management and for the reflection on project success are important to keep track of (Todorović et al., 2015a). KPIs and project performance measures allow for a detailed analysis of the elements in a project, the management projects, and what knowledge is necessary where within a project, in order to raise the chances of a successful conclusion (Todorović et al., 2015a). In addition, this collection of information, knowledge and measures can benefit future projects and future project management endeavours.

In the third step, entitled 'Measuring project success according to defined KPI's and documenting results of success measurement', documentation is the main goal (Todorović et al., 2015a). Documentation is important for two core reasons: for project and organisational sustainability, and for the decision-making processes that will take place in future projects (Todorović et al., 2015a). Some activities and results will be incredibly difficult to measure accurately throughout the project lifecycle, but these should still be measured, just to a lower level of accuracy (Todorović et al., 2015a). Defining methods for gathering, analysing and distributing data should be done in the planning phase of project management so that measuring and evaluation can be done to the fullest and most accurate degree possible throughout the rest of the project lifecycle (Todorović et al., 2015a).

This evaluation phase also has to weight various KPIs against each other in terms of priority, as well as the negative impact they will have on projects if they are not reached or if they are overshot (Todorović et al., 2015a). Turning this into a standardised system aids in the project process and in future project implementation and in successful conclusions.

The fourth and final step, entitled 'Final evaluation of project success and creation of the final project report', is the step where a final comprehensive evaluation of the project takes place (Todorović et al., 2015a). Documentation of every step of the project as outlined in the previous step becomes of clear importance when writing up the report to analyse the project once it is finished (Todorović et al., 2015a). Completed projects are a rarity in many companies, especially when the method of post-project audits is included as a step in the project lifecycle (Todorović et al., 2015a). This is an unfortunate fact, since post-project evaluations can identify any deviations in the process, data, or results, and the big-picture view it creates can help project managers and teams to see where they went wrong or what could have been done better to improve the process (Todorović et al., 2015a). The information gained from these audits can therefore progress implementation of processes in future projects undertaken by the organisation.

While the two frameworks described above relate specifically to project management, there also exist useful frameworks for the other types of management that have been discussed. With regards to portfolio management, it is important to understand that it is in fact a framework in and of itself. As a more recent subset of the research performed on project management, portfolio management has become a framework used to organise the various projects that organisations undertake at the same time.

In SMEs, having a framework of portfolio management in place is incredibly important because not only does the organisation have multiple projects occurring at once, but project managers and employees are more likely to be involved with numerous projects at once as well, all of which are using the same pool of resources. Often these multiple projects will have conflicting goals, or certain aspects of the projects that conflict with one another. In these cases, portfolio management allows for the allocation and organisation of resources. Management decisions on which projects should be prioritised, as well as how employees and project managers can organise their time and efforts to ensure that projects interfere with each other as little as possible, are also benefits of portfolio management to SMEs. Instead, it ensures that the parallels of projects are utilised to the advantage of the firm and project teams.

Ensuring that the techniques employed in portfolio management lead to a portfolio that is best suited to achieving company strategies requires some strategic building criteria (Miguel, 2008). Incorporating strategy-based criteria into the decisions of which items stay and which go, as well as using prioritisation and top-down strategy models are a few examples of what techniques and processes can be used to maintain strategic alignment in portfolios (Miguel, 2008; Oliveira & Rozenfeld, 2010). Another key strategy that can be used is to categorise each project in terms of the amount of change it will have towards furthering the strategic goals of the organisation (Miguel, 2008). Charts, diagrams, and other visual aids may also be useful to map out strategic objectives and where portfolio items fit within the larger picture (Miguel, 2008).

With regards to innovation management, a framework specific for SMEs was developed after an intensive literature review by Saunila in 2016. While the author of the study did not give a specific name to the framework, here it can be referred to as the Innovative Capabilities Improvement Framework. This framework has four key propositions which are as follows:

1) ‘A firm’s innovation capability is determined by firm-specific contextual factors and enablers;

2) A firm's innovation capability consists of seven determinants that overlap and influence each other;
3) Innovation capability can be developed through a proper use of performance measurements;
4) Facilitating innovation capability through performance measurements enhances a firm's performance' (Saunila, 2016).

These four propositions have been visually represented in Figure 2: Innovation Management Capability Framework. The purpose of the framework is to give a structured approach for SMEs to improve their innovation capabilities through the use of performance measurements. As is apparent in reviewing the frameworks for all three types of management, there are some key features such as measurement and analysis, as well as the interconnected nature of elements, which are crucial to the frameworks regardless of the type of management being addressed.

The first proposition outlined by this framework has to do with the firm-specific factors and enablers that help to determine an organisation's innovative capability. With this proposition, it is important for management to keep in mind that there are factors about organisations that will help or hinder their innovation (Saunila, 2016). For example, certain industries are innately more innovative than others, and restrictions on financial resources will limit the types of innovative solutions that can be achieved. The vision and strategy of a company will also impact the innovative capability, either enabling a more innovative culture, or acting as obstacles (Saunila, 2016).

The second proposition describes the interconnected nature of determinants. These are the seven factors located in the larger box labelled 'Determinants of Innovation Capability' in Figure 2. While it is sometimes viewed that factors influencing innovation are a homogenous group, this framework argues that these determinants are actually dynamic (Saunila, 2016). While the framework views them as interconnected factors, the use and applicability of each factor may differ depending on the type of firm and the type of innovation being employed within that firm (Saunila, 2016).

The third proposition is that innovation can be achieved through proper implementation of performance measures. This is a theme that was seen in Todorović et al. (2015b) framework for project management as well. Measurements, if conducted properly, can be incredibly beneficial tools for forwarding innovation initiatives in organisations (Saunila, 2016). Measures should be dynamic and continually under review to ensure that necessary changes are made to keep the measures relevant (Saunila, 2016). A variety of measures are adopted by an organisation as this can help to foster diversity in thinking and knowledge application which in turn helps to foster innovation (Saunila, 2016).

Finally, the fourth proposition is about measuring innovation itself, and how this can be beneficial to facilitate the innovative capability of a firm. Measuring innovation can and should be a strategically implemented management tool, so that proper decisions can be made based off of the measurement information (Saunila, 2016). As well, firms should start to focus their attention not only to just the measurement of performance, but further to the management of that performance (Saunila, 2016). With regards to innovation capability measurements, the focus should be on evaluation and reacting to changes so that performance improvement is possible (Saunila, 2016). Finally, innovation measures should be aligned with the organisational strategy and with each other, and measures should be implemented at a number of levels and throughout the project lifecycle (Saunila, 2016). In doing so, measurement can be realised throughout the project process, turning capabilities into assets of the SME (Saunila, 2016).

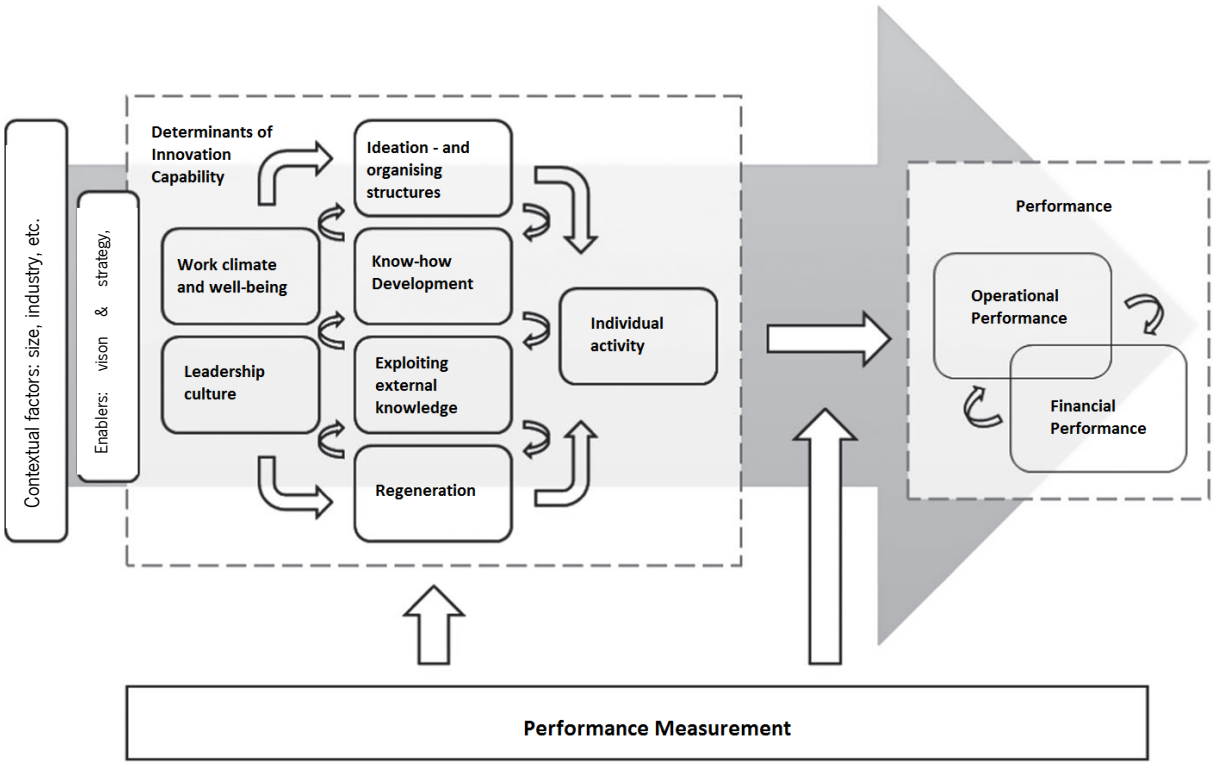

Figure 2: Innovation management capability framework

2.3.2.Importance

Frameworks are incredibly important for achieving well-rounded and successful management, regardless of the target discipline. This is because frameworks represent a structural support system that can help to keep individuals, teams, management, and even organisations on track with their goals (Todorović et al., 2015a). As humans, we are often reliant on structured systems to ensure that we stay

on time, on budget, and focused on end goal as we work on all of the small details and steps that make up a project (Baer, 2014).

In SMEs especially, there are restraints on resources that the management approaches discussed aim to address. Frameworks can help to streamline and standardise these management practices so that the most benefit possible can be gained from their implementation. Frameworks can act as a way to disseminate information and knowledge more effectively throughout organisations and project teams (Todorović et al., 2015a). As well, documentation plays a crucial role in most frameworks, as it is a necessary component for continual, efficient, and effective improvement (Todorović et al., 2015a).

Having structure in place in an organisation allows for guidance not only for the employees but also for the individuals in management roles who may not know exactly how to implement processes efficiently in a particular company (Ingram, 2018). This applies to management frameworks as well, since they afford managers a way to organise and direct the organisation. As SMEs often do not have formally trained project managers, this structure in management approaches and procedures is even more important (Snider, Silveira, & Balakrishnan, 2009).

2.3.3.Impact

With all three discussed management approaches, namely that of project, portfolio, and innovation management, the goal of implementing each has been to improve organisational capabilities through the use of projects. Projects are employed to foster innovation and achieve improvement and change within organisations. Innovation is linked to improved operational performance and even improved financial performance in the long-run (Saunila, 2016). Connecting all of these pieces together, these management approaches help to achieve improved company performance.

As has been described throughout this report, project, portfolio, and innovation management are all interconnected and all highly useful tools if implemented properly by SME project managers. Frameworks can give the necessary structure to management practices in SMEs. This in turn can help in the continual development and improvement that the management approaches are intended to achieve. As such, SMEs can reach their goals and ultimately realise and retain a competitive advantage in their industry.

2.3.4.Deep sights and analysis of existing frameworks

No matter what the size of a company is, it is always important to ensure a steady curve of growth, improvements, and success of the business, which is usually measured and evaluated periodically to

ensure things are moving in the right direction. This process can be done in many ways, and for that we find different methods, frameworks, and models that do exist in the industry and are used by many companies for this purpose.

The following section will build an additional layer for understanding the strengths and weaknesses of the major current frameworks; looking into some of these frameworks that exist in the industry shall help the study find better ways to improve while designing Innoframe. Most probably the ones that will be covered are the ones that address the concepts of innovation management and portfolio management, either addressing each of the concepts alone or that address both concepts together.

This section will try to understand also the scope of each of the listed frameworks. The scope represents a main factor for judging the impact of this framework on the business. For instance, no one will expect a framework that is designed to help measure the performance of employees in certain process, to be used in measuring the turnover rate of these employees in the company. This is a matter of scope, and for that it is important to define and specify what should be expected from any framework to do and how.

In addition, the below section will not only list these frameworks, however, it will explain briefly the way the work or the concept behind designing them and establish a solid foundation for the next section that will explain in detail the designing, importance, and added value of Innoframe.

Before listing the frameworks and their corresponding explanations, it should not be forgotten that each framework has a certain motive behind its creation, which means that there is a unique and specific flavor for each one of it depending on its purpose and usage. This means that comparing them comes for the sake of shedding the light on their main functionalities and effectiveness for what they were designed for, yet not for the sake of ranking them from weak to strong or vice versa. It might be noticed that these frameworks integrate a combination of different factors and different items that does not necessary relate always together, however, the integration of these items would help the overall rational of the problem-solving process. Yes, many methods might come out integrations, which may be perceived as complex, yet the application of it would take things down into simpler steps, which are reasonable and actionable. The process of getting from complexity into simplicity in business requires a typical framework - sometimes called model - that shows the breakdown in the easiest way possible. It will be noticed in some of the following frameworks that there has been a focus to eliminate the integrity of more than two concepts at once. This fact comes from the belief that trying to eliminate complexed integrities would help keep the roles and tasks of the team clear on one hand and help prevent

duplicated efforts and redundant tasks on the other hand. The below analysis will try to shed the light on this fact, the extent of its impact, and how could it help in achieving the overall purpose of the framework.

- Channelvation Innovation Framework – By Mark Dancer

The first framework that will be discussed is a framework designed by Mark Dancer called Channelvation. This innovation framework has the same name as the company he founded back in 2012 and of which he is currently the president (Dancer, 2017). Channelvation is intended to help businesses, leaders, and teams to create visions, solve problems and strengthen their capabilities (Dancer, 2017).

Mark Dancer took his bachelor's degree at the United States Naval Academy in Mechanical Engineering from 1975 to 1979, and then received his MBA (Master of Business Administration) from North Western University's Kellogg School of Management in Marketing and Finance from 1987 to 1989 (Dancer, 2018). Throughout his career he has worked at a variety of companies including as Vice President at Henkel, a Principal at Pembroke Consulting, and a Strategic Advisor at Delight ME Inc. (Dancer, 2018). He is one of the leading authorities on both channel innovation and business transformation and is a published author on the topics (Future of Channels, 2018).

Channelvation Framework is a visual representation of the innovation framework Mark Dancer designed. The framework is divided into four sections which feed into the wheel of innovation. These four sections are development, management, design, and vision. Within each section are sub-sections that apply to each broader category. As can be seen in Figure 3, the section of 'Design' refers to the set-up of the organization itself, the processes and systems in place within the organization, and the design of performance measures. The section entitled 'Manage' refers to management of the rewards systems in place, the education of employees and hiring of individuals with the required skills, as well as the deployment of resources and opportunities throughout the firm. In terms of the section 'Develop', this is about the development of things such as the culture within the organization, the partnerships with other organizations, and the capabilities of those working for the firm. Finally, the 'Vision' is about forwarding the mission of the company, identifying and striving to achieve the strategic goals, and ensuring the knowledge level of the intended customers the firm is targeting.

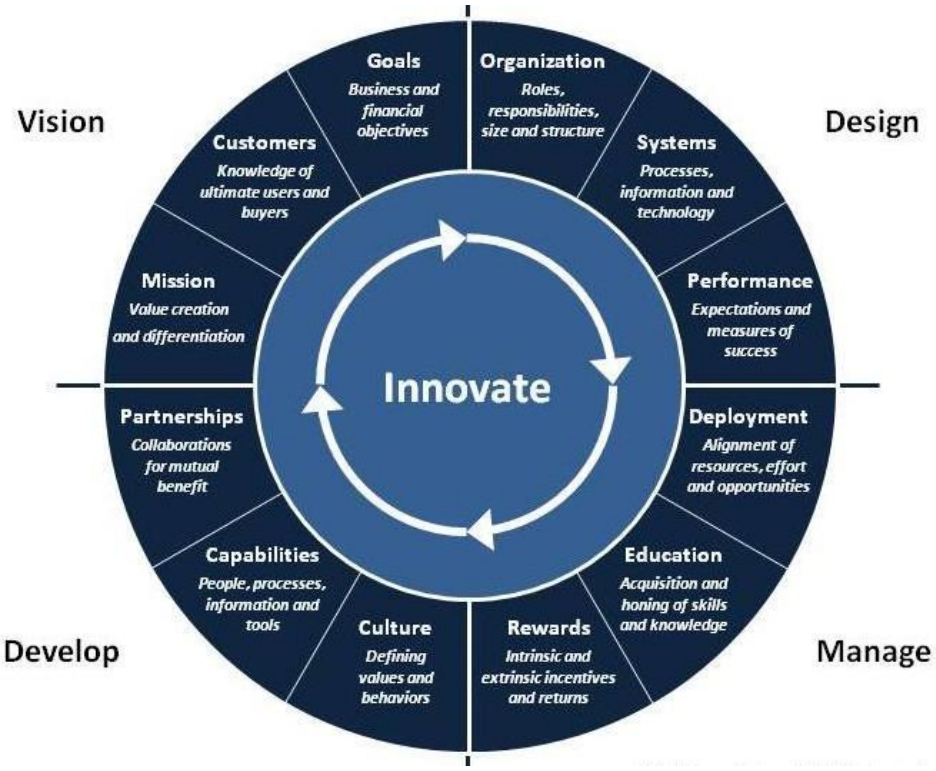

Figure 3: Channelvation framework
(Future of Channels, 2018)

Each of these sections as well as the sub-sections within them play a role in innovation within the firm and all four are employed together to achieve a state of continuous innovation. In Figure 3, the ongoing process of innovation is represented by the center wheel in which a constant circle of arrows is depicted, indicating this connection.

The framework, and the company that uses it to help their clients, is intended to be a tool to improve the effectiveness of channels in an organization (Dancer, 2017). They also work to improve the level of innovation in businesses (Dancer, 2017). As the firm puts it, there are a variety of disruptive threats and transformations in channels that make the traditional assumption about business models much less useful (Dancer, 2017). This means that having an innovation business framework is of high importance, especially since consumers are found to be more open to changes in the way they acquire goods and services. This in turn means that disruptors are able to infiltrate a market (Dancer, 2017).

The Channelvation framework works best with specific regards to innovation with the channels, or pathways, that an organization employs. This is simply because that is the focus of the company itself (Channelvation Inc.) with regards to how they help improve other businesses when they work as consultants. On their website, Channelvation states that they welcome complex challenges to work with, and that their solutions are delivered through intensive workshops and fast-paced, focused, and

collaborative engagements (Dancer, 2017). From this, it would seem that while the framework is effective in a variety of different sized organizations, it may be better suited for those that are slightly larger in nature (medium to large organizations) as they will have more available employees who can sacrifice their regular work for a period of time in order to attend these workshops. Based on the numerous publications and the lean towards technologies as the main driver discussed as being disruptive forces, the industries which would work best for this framework would be those where technology and online presence are a major force. Of course, as we continue to head towards an increasingly high-tech world, the industries that would fit under this description continue to grow.

This framework is integrative in that it aims to include all of the various factors of an organization into its employment. This is important when considering innovation because often innovation is seen as solely from a technological standpoint and organizations get stuck in this viewpoint (Mcadam et al., 2007). This being said, the framework does have its drawbacks. As a framework, it is very vague, offering more of a general direction than any real structured system that can be followed. As well, the system does have a more pronounced focus on technology when described by the company who designed the framework. While they focus on the organization's innovation as a whole, this technological framing does lead to a bias in terms of what pieces of innovation will be taken more heavily into account.

- Business Model Innovation – By Koen Klokgieters

Koen Klokgieters is a strategy and innovation consultant and an entrepreneur who has been in the industry for over 25 years (Klokgieters, 2018a). He started out working for AT&T (American Telephone & Telegraph), then some start-ups out of Universities before he worked for CapGemini Consulting as their Vice-President of Strategy and Innovation in 1999 (Klokgieters, 2018a). In 2013 he founded Business Innovation & Entrepreneurship which is a network organization (Klokgieters, 2018a). He himself works to support organizations from Start-ups, all the way to Global Corporate companies and Non-profits, and he is also a formal member of numerous non-executive boards for both innovation organizations and non-profit organizations (Klokgieters, 2018a). Finally, he sees business innovation as a process of creating, developing, and capturing added value for a company that their customers can adopt, and he looks at success as a holistic and lean approach encompassing vision, strategy, organizational structure, and the dynamics of people all being put into action (Klokgieters, 2018a).

As can be seen in Figure 4: Business Model Innovation Framework, there are three sections to Mr. Klokgieters framework: The Emotional Value Performance, the Rational Value Performance, and the Key

Building Blocks to achieving the value proposition. The rational value performance has to do mostly with the financial indicators and outcomes (Klokgieters, 2018). The emotional value performance on the other hand is the more intangible but equally important indicators such as reputation, experience and sustainability (Klokgieters, 2018). These indicators are more difficult to calculate in their impact on the business, but they are highly important factors and should not be left out of the equation. The middle section are the building blocks that help both of these things to occur. There are two key sections of building blocks, one section more related to the relations outside of the company (i.e. the customers and distribution channels), and one section that is more related to the internal streams and business units (i.e. core capabilities, networks, and business functions). Through calculating the performance values and using the building blocks, a value proposition can be identified (Klokgieters, 2018).

This framework can be useful to organizations in a variety of industries and is fairly broadly applicable. As it incorporates both financial and other indicators, it is well-rounded in its approach and can apply to organizations of a variety of sizes. This is more believable especially considering the fact that its designer, Mr. Klokgiester, has experience both in large corporate entities as well as start-ups.

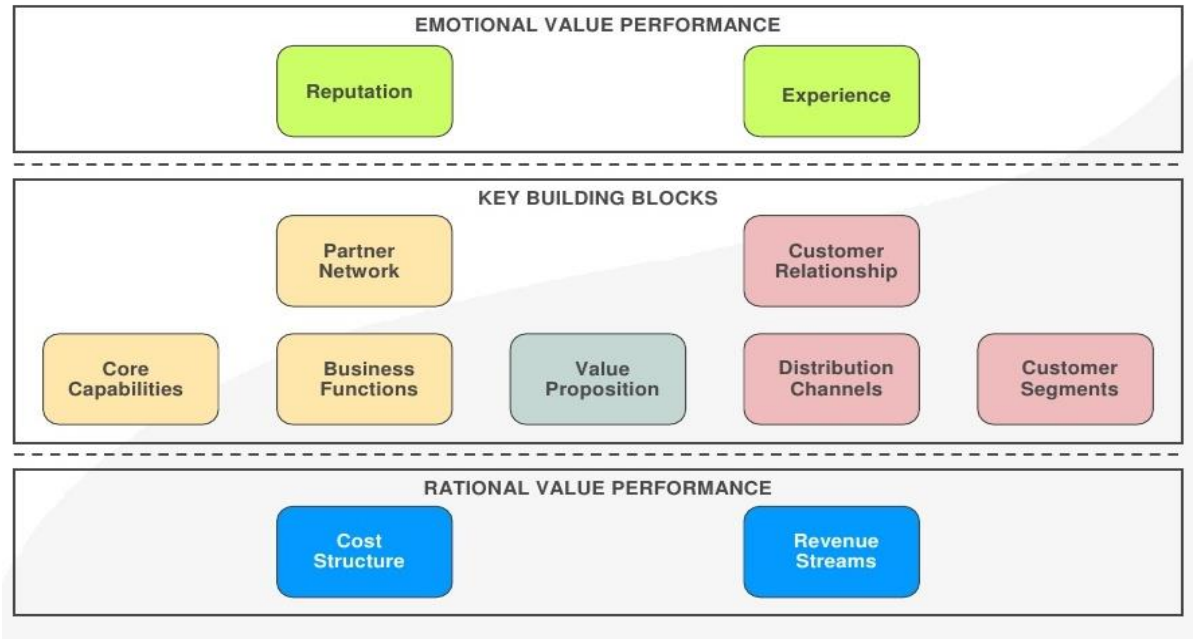

Figure 4: Business model innovation framework
(Klokgieters, 2018b)

This framework has some strengths that should be pointed out. First, it is a very well-rounded framework as it incorporates indicators both on a financial basis and on the basis of more intangible or 'emotional' factors. Second, the framework is laid out well so that it is easy to understand and apply to an organization. Along the same lines, the framework is broad enough that it can be applied to a wide

variety of organizations, both in terms of the industry and in terms of organizational size. Thirdly, the framework focuses on a different aspect of innovation and a different approach to it, looking at the indicators from a financial and emotional standpoint to achieve a value proposition. This is a unique approach from the other frameworks being discussed, but a valuable factor to include in a framework.

Despite all of the strengths that this framework has to offer, there are still some downfalls with it that should be addressed. To start, it is supposed to be an innovation framework and yet it focuses primarily on a value proposition, meaning it is not a framework that integrates innovation throughout the organization, instead focusing on the R&D aspect of innovation. This is the biggest issue with the framework but not the sole downfall. The framework also does not highlight the interconnections between the different areas or suggest feedback loops to ensure that checks are made. It also does not give any indication of the process by which each of these sections should be implemented. While this can be beneficial, it can also cause less success in innovation if the general flow of steps has not been outlined, especially within organizations where managers/leaders have no formal training in the area of innovation management.

- The Innovation Diamond – By Stage Gate International

Stage-Gate International was founded by Dr. Scott J. Edgar and Dr. Rogert G. Cooper both of whom are published authors in academia and have consulted and advised companies on portfolio management and product innovation around the globe (Edgett, 2013). The organization itself is a globally recognized brand working with companies across all industries and all sizes to enable them to achieve product innovation and product portfolio management success (Edgett, 2013). While the founders have over 30 years of experience with product innovation performance, Stage-Gate International was only started in 2000 (Edgett, 2013). Since then, the consulting firm has been helping other organizations to improve their product innovation performance through key drivers such as product innovation and technology strategy, new product portfolio management, the Stage-Gate idea-to-launch processes, and through culture and leadership initiatives (Edgett, 2013).

As can be seen from Figure 5: The Innovation Diamond, there are four keyways in which an organization can achieve new product performance. These four ‘points’ of the diamond represent the four ways in which Stage-Gate International approaches a product innovation dilemma within an organization. Starting at the top of the diamond, they want to address the strategies that the organization is using in terms of product and technology innovation. This is an important piece,

especially regarding organizations with a focus on product development, but as mentioned by (McAdam, Keogh, Reid, & Mitchell, 2007) should not be the sole focus of an organization.

Figure 5: The innovation diamond
(Stage Gate Incorporation, 2019)

This is where the other points of Stage-Gate's diamond come into play. The second way they look to achieve new product performance is through portfolio management, which as has been noted, is a key technique that should be used in a holistic employment of innovation management (Mavroeidis & Tarnawska, 2016). In this way, they can ensure that the product mix they are identifying for an organization is the best possible fit given any restrictions that may be in place. The third point they identify is the climate, culture and the leadership. These are all very important drivers of innovation as they allow for an organization wide adoption and acceptance of new processes and approaches to thinking. Finally, the fourth prong of this framework is the use of Stage-Gate's idea-to-launch process. This is a process designed by the company, which according to them, is the industry standard for the management of new product innovation. It is a process that integrates a variety of performance-driving practices in a way that is easy to understand and implement. It is a useful tool for any organization looking to launch new products or technologies, and for those who are looking to improve current products and technologies that their organization offers and employs (Edgett, 2013).

The founders and the company itself have used this framework within a variety of organizations in terms of size, from SMEs to large corporate enterprises (Edgett, 2013). In this respect, the framework has a fairly large applicability. However, the focus on product development and innovation means that this

particular framework is only useful in industries that are product-based. A firm that is primarily service-based will only find this framework useful to a certain extent, that being mostly driven from a technological innovation standpoint. Even if the framework would be useful to an extent from the technology innovation aspects of their business, many service-based firms will not wish to employ this framework as it does not fit perfectly with the needs of their firm.

The Stage-Gate Innovation Diamond framework has numerous strengths. To start, it is multifaceted, meaning that it does not just approach its intended goal from one angle. It instead takes into account a number of different aspects of a business that have an impact on that business's ability to innovate in order to attack the problem from all sides. This allows the framework to be comprehensive. It also has the strength of its fourth prong of attack, that being the idea-to-launch process developed by Stage-Gate International. This particular prong is a specific step-by-step guide which can help to structure an organization's product innovation. The structure it gives to the fairly fluid and creative process of innovating new product ideas is important, especially given that it is supposed to be an incredibly easy to follow guide, meaning anyone can implement it with some success.

This framework does however have some shortcomings. As previously mentioned, the framework is dedicated to product and technology innovations. The center goal in Figure 5 shows this quite explicitly, as the four prongs meet in the middle where they achieve 'New Product Performance'. This represents the main drawback of this framework – it is not applicable to any firm who is not looking to work on product innovation specifically. While the consulting firm articulates that they tailor their programs to the client looking for their services, it is unclear how useful much of their framework would be to a client who does not have any need for product innovation help.

- Decision Driven Innovation Framework – By Decision Driven Solutions

The following framework was designed by Design Driven Solutions, a blog and organization developed by John Fitch (Decision Driven Solutions, 2008). He has spent over 30 years as a decision management consultant, primarily for high-technology companies (Decision Driven Solutions, 2008). The vision of the organization is to become the standard for organizations across the board in proactively managing their strategies as well as for individuals to manage their lives and achieve their visions (Decision Driven Solutions, 2008).

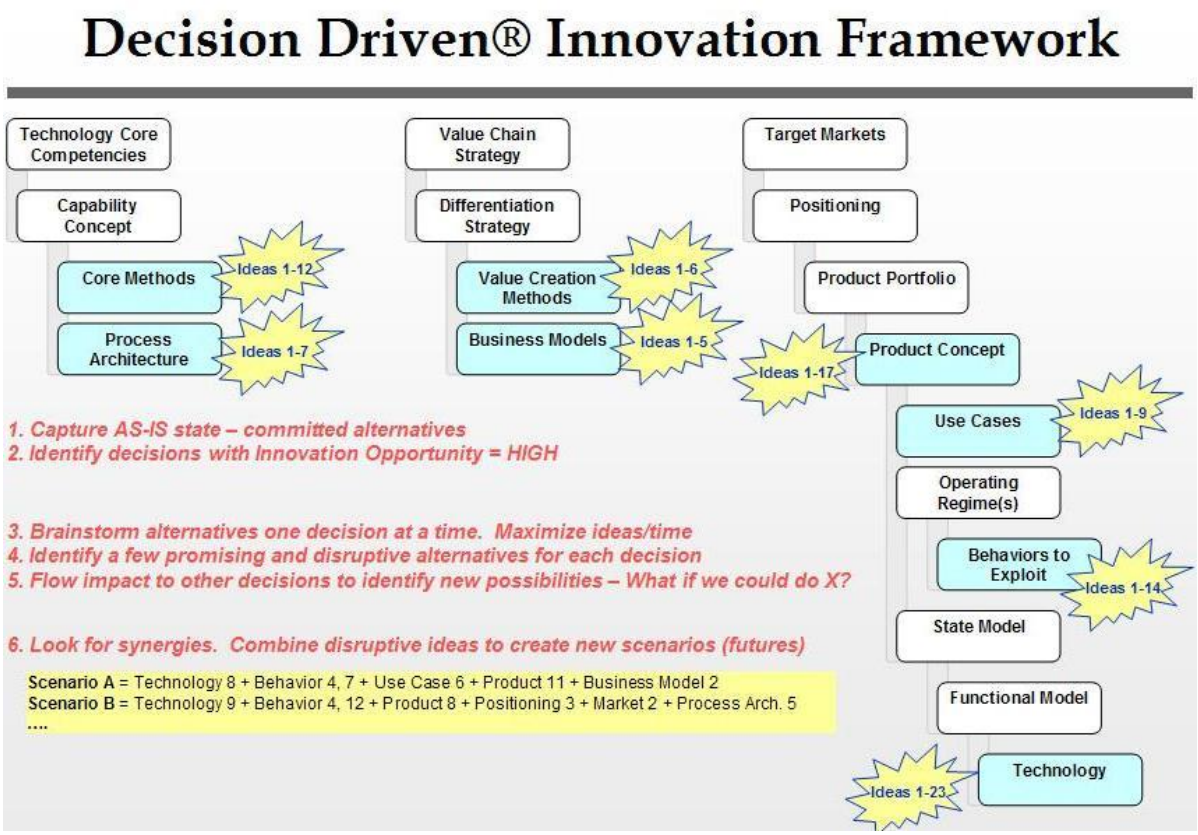

Figure 6: Decision driven innovation framework
(Decision Driven Solutions, 2008)

The innovation framework by Decision Driven Solutions can be seen as a visual representation in Figure 6: Decision Driven Innovation Framework, above. As is apparent from Figure 6, it is an in-depth and specific framework designed almost as a flow chart. It starts with three key methods, those being Technology Core Competencies, the Value Chain Strategy, and Target Markets, and then it becomes increasingly specific with approaches, techniques, and tools the further down the 'flow chart' one gets. On top of this, it incorporates a list of 'ideas' which appear next to certain flow-chart steps as usable items. From this it develops a number of scenarios combining different options for technologies, behaviors, products, and marketing strategies among other things.

The idea behind the framework was to make and use strategies through decision breakdown structures (Decision Driven Solutions, 2008). This is where each decision is treated as a fundamental question or issue that needs a solution (Decision Driven Solutions, 2008). By using their framework, one develops alternatives to each decision (Decision Driven Solutions, 2008). As baselines are captured, organizations can then look to where the organization's solution to a question is not performing well so that adjustments can be made (Decision Driven Solutions, 2008). It is essentially a framework for the advanced use of decision patterns (Decision Driven Solutions, 2008).

This framework is useful in organizations who are highly organized and structured, as the framework requires both of those things. It also requires a lot of time and energy spent in a 'think-tank' state where individuals can devote large chunks of time to brainstorming (Decision Driven Solutions, 2008). This may pose a problem for smaller organizations who cannot afford to devote so much time and energy away from their day-to-day operations. Other than the complex nature of the framework causing blocks to the use of the framework in certain firms, it can be applicable in a variety of industries and types of firms. As a framework that looks at decision-making as a tool for innovation, it is actually quite useful to any organization who needs to make decisions, which of course is a core piece of business and therefore essentially universal.

Going off of the last point made above, one of the major strength of this framework is that it has a universal applicability to it in terms of the driving factor in innovation. This framework focuses on decisions which is fairly unique considering the other frameworks that have and will be discussed in this document. The framework also has the strength that it is highly focused and efficient in terms of the set-up and processes employed while using the framework. The specific and well-laid out nature of processes within the framework can also be beneficial. Both of these points, however, as will be discussed momentarily, can also be problematic.

As was pointed out, there are also downfalls to this framework. Although the specific and intricate nature of the framework can be helpful in terms of giving a tangible list of specific tasks and initiatives to follow, this framework almost takes it too far, making it confusing and difficult to follow. This is detrimental to organizations with fewer resources that can be devoted to sorting out the framework and it may deter management who want something that requires less intense training and understanding for their employees. The deeply specific nature of the framework also has the ability to create too much structure which can quash innovation rather than foster is. This may occur because employees will get too focused on hitting all of the necessary marks rather than on the creativity and brainstorming required for innovation. It can also lead to a focus entirely on the achievement of making decisions rather than putting the focus on the implementation of those decisions into valuable actions. Finally, this framework requires a lot of time and energy to implement effectively. For firms that do not have the capability to pull employees away from their daily business tasks for extended periods of time to participate in focused innovation think-tanks, this framework becomes useless and unattainable.

- The FROST Innovation Framework – By Gas Labs

The next framework to be analyzed was designed by Gas Labs, which is a digital innovation company founded and run by two individuals – Ian Guest and Matt Shearer (GasLabs, 2018). Matt Shearer's knowledge in innovation comes from his work on projects for BBC (British Broadcasting Corporation), specifically with their online education program as well as founding BBC News Labs (GasLabs, 2018). Currently, in addition to working for GAS Labs, Matt Shearer also freelances on innovation projects with both Outlandish.com and Datalanguage.com (GasLabs, 2018). Ian Guest, the other man running the company, has worked for a variety of corporations primarily focused on procurement and supply chains (GasLabs, 2018). One of the biggest positions he held relating to innovation was at Allianz Plc working on supplier innovations and collaborating with global suppliers (GasLabs, 2018). The name 'GAS labs' is actually an acronym for "Guest and Shearer" and it is a consultancy firm that helps other firms with strategic planning, as well as innovation planning and delivery (GasLabs, 2018).

GAS Labs has developed a framework to help companies help themselves in a sense. This framework – with the acronym FROST – has been visually outlined in Figure 7: The FROST (Focused, Regular, Open, Safe and Tangible) Innovation Framework for Practical Innovation. The idea behind the FROST framework was to enable organizations to design an innovation program that best fits their staff and their culture by using their own employees' strengths and knowledge (GasLabs, 2018). As depicted in the framework, there are five key prongs to achieve successful innovation.

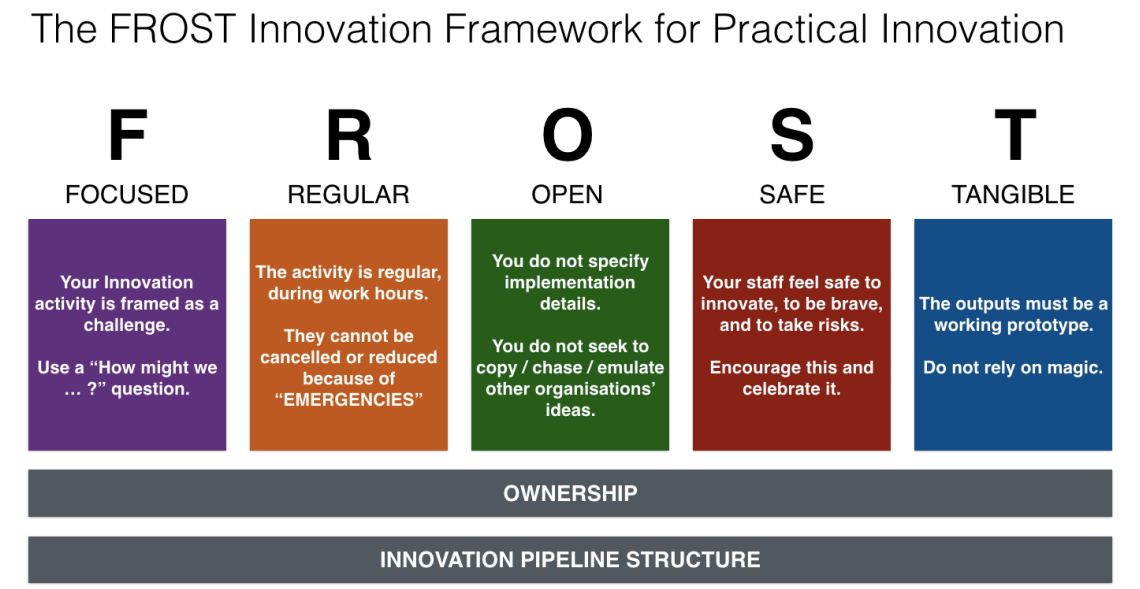

Figure 7: The FROST innovation framework for practical innovation
(GasLabs, 2018)

These five characteristics are as follows:

1) Focused. This means that your innovation activities are well-articulated and framed as a challenge;
2) Regular. This is about ensuring that innovation is constantly occurring within the organization in regularly scheduled sessions and that these innovation sessions are protected from emergencies that disrupt set-aside time for innovating;
3) Open. This entails organizations ensuring that the challenge they pose for themselves with regards to innovation is open-ended, meaning that no details have been identified and there are no restrictions set;
4) Safe. Employees and all those participating in the innovation initiatives should feel completely safe to take risks and to try anything throughout the process;
5) Tangible. The results that come from the innovation sessions should be an actual prototype that works, not a general idea or something that cannot be implemented.

As a broader framework, it can be used by organizations in a variety of industries and is applicable to numerous types of innovation objectives. While it is foreseeable that this framework could be used by any type and size of organization, it is important to note that the main experience of both of the founders and designers of the framework is in implementing innovation in large corporate entities (GasLabs, 2018). While this does not necessarily mean that it is not a suitable framework for SMEs, it is worth some caution when being implemented in SMEs.

This framework has a number of strengths. To start, it is an open-ended framework that has the ability to be catered to a variety of innovation objectives and can be tailored to fit an organization. In addition, the framework has been developed so that organizations and their employees can take the lead in their own innovation initiatives, rather than some frameworks which rely on an outside consultant to come in who has extensive knowledge of how a framework should be implemented. This allows employees to feel empowered and an organization to shift the culture of their firm from the ground up rather than it being forced upon employees from an outside source. Finally, the framework focuses on innovation as a whole, framing innovation as a challenge which allows the organization to approach it from a unique and more analytical angle than most frameworks.

While this framework has many good things to offer, it is not perfect. It does in fact have some downfalls which make it less useful in some scenarios. One of the most notable issues with the

framework is that instead of incorporating innovation into the daily thought process and every-day activities of organizations, it carves out specific and scheduled time in which employees are supposed to utilize their innovative creativity to brainstorm solutions. While this is a useful tool in terms of keeping people focused and having brainstorm sessions, it does not allow the individuals in the organization to infuse innovation throughout their work in the organization, thus missing creative revelations and making it more difficult to change the innovation culture within the organization.

- Portfolio Management and Enterprise Management Framework – By Georgia Institute of Technology

The Enterprise Management Framework was developed by a division of the Georgia Institute of Technology called Georgia Tech Strategic Consulting (Georgia Tech Strategic Consulting, 2018). The consulting team was organized in 2013 to implement strategy, strengthen and streamline organizational design, and increase the operational effectiveness and efficiency of the Georgia Institute of Technology (Georgia Tech Strategic Consulting, 2018). The sub-organization was developed as a sort of internal consultancy agency for Georgia Tech, who has always invested in organizational development and program/project management resources (Georgia Tech Strategic Consulting, 2018). In this way, they could have a focused group of individuals devoted solely to the development of Georgia Tech, rather than outside consultant agencies that work with a multitude of organizations. They did so by combining two separate departments in the Institute, those being the OD (Organizational Development department) and EPMO (Enterprise Project Management Office) (Georgia Tech Strategic Consulting, 2018).

Figure 8: Georgia institute of technology's portfolio and enterprise management framework
(Georgia Tech Strategic Consulting, 2018)

The framework that Georgia Tech Strategy Consulting developed can be visualized using figure 8: Georgia Institute of Technology's Portfolio Management and Enterprise Management Framework. This framework can be used for the initiation, planning, and execution of improvement projects, specifically for the Georgia Tech Institute (Georgia Tech Strategic Consulting, 2018). While this framework was initially developed specifically to be used for Georgia Tech, it can be applied to similar functioning organizations, especially those regarding academic, research, and administrative endeavors (Georgia Tech Strategic Consulting, 2018).

The process starts with defining the project objectives and how they align with the strategy of the organization, as well as defining the metrics and measurements to be used in the process. After this, the enterprise project management process is performed, which combines people, process, and tools of the organization while constantly keeping the strategy in mind. Once this process has been completed, the metrics can be measured to assess the success of the project. During this whole process, enterprise portfolio management should be occurring. This entails a variety of tools such as

project management, the visibility of the project and its alignment with the strategic plan, as well as the use of measures and metrics.

In terms of where this framework is useful, it is not as broadly applicable as many of the frameworks that have been discussed. It was developed for a very specific organization and for specific units within that organization. As mentioned previously, the framework was developed for a higher education institute and the divisions of that academic institute it was developed to aid were the academic, research, and administrative units (Georgia Tech Strategic Consulting, 2018). This being said, the framework may prove useful for other organizations, but caution must be taken particularly with smaller organizations that do not have any interest in innovation in an academic, research or administratively-oriented sense as this would be the exact opposite of what this framework was intended to be used for.

This framework is useful in that it highlights the importance of measurements in project success which is not always an apparent factor in frameworks that are developed. As well, it does a good job of breaking down the process into sections that can help to achieve smaller goals in relation to a project. Having a beginning, a middle, and an end is a useful set-up as it reads like a typical story, making it easy to follow and assess. As well, the separated section devoted to ongoing monitoring (i.e. portfolio management) makes a clear distinction between the functioning of the project steps and the process of assessing it throughout its lifecycle. This is an equally important distinction that not all frameworks make clear or even include.

This being said, this framework has some pitfalls. The most apparent pitfall is that it was not developed with a wide range of organizations in mind, or with a variety of project types in mind. The narrow scope of its inception should instill caution in organizations other than the Georgia Tech Institute when employing this framework. In addition to this, the middle portion of the framework is quite vague. While the use of metrics is admirable and well-framed, the actual enterprise management process is not particularly helpful aside from reminding organizations to keep the intended strategy in mind in all that they do.

- Agile Portfolio Management Framework – By Henny Portman

The Agile portfolio management framework was designed by a man named Henny Portman. He has numerous expertise areas as a consultant, author, reviewer, and an international Speaker (Portman, 2016). He is also a coach and trainer in both the more traditional project management techniques and the Agile suite of techniques (Portman, 2016). His experience has been in project management offices, in a number of roles within large companies in their operations across Europe and Asia, and he is

currently a partner at HWP (Hedeman Weiferink Portman) consulting (Portman, 2016). In terms of his experience with writing and reviewing, he has written articles, reviewed several manuscripts, and he has written a number of books focused primarily on the Agile frameworks that he has developed (Portman, 2016).

The purpose of the Agile framework is to provide a lean portfolio management technique to organizations so that they can become more effective at portfolio management and more efficient in the way they approach problems. Figure 9: The Agile Portfolio Management Framework gives a visual map of how this framework is set up, and how it can be achieved. Within this framework there are five main steps to be achieved. While there is a linear directionality with regards to the steps, it is important to note that within each step there are checks and adjustments (as represented by the small circles above each blue box). As well, there are checks and adjustments to be made between each of the steps, allowing for re-evaluation of a previous step based on the results of the next step. Finally, there is a check-in with consumers after the stage of delivery and inputs throughout the various stages to allow for outside input into the process and outputs.

The five main steps of the Agile process can be seen in Figure 9 as Strategy assessment, Direction setting, Selection, Planning, and Delivery. These are the general 'umbrella' steps that should be followed when implementing an Agile framework. It is important to point out however, that the Agile framework outlined in Figure 9 is only a skeleton. The list of items below each of the steps in blue boxes are techniques and tools that can be employed at each step. As Henny Portman describes in his blog, these are a list of aspects that organizations can pick and choose from, in order to design the Agile framework that best suits their organization (Portman, 2016).

In terms of the type of organizations that this framework can be used for, it is quite broad. Due to the incredible flexibility of the framework in terms of being catered to fit different organizational needs, it can be applied to organizations in a variety of industries. However, it will not deliver the best overall results in all situations. As was found by a study conducted by Dr. Thompson, the Agile project lead at cPrime, Agile is most effective when the uncertainties with projects is very high (Trapani, 2014). As well, the short repetitions and cycles in the Agile process make it more resource intensive (Trapani, 2014). This of course poses an issue for smaller organizations who do not have the resources necessary to carry out Agile processes.

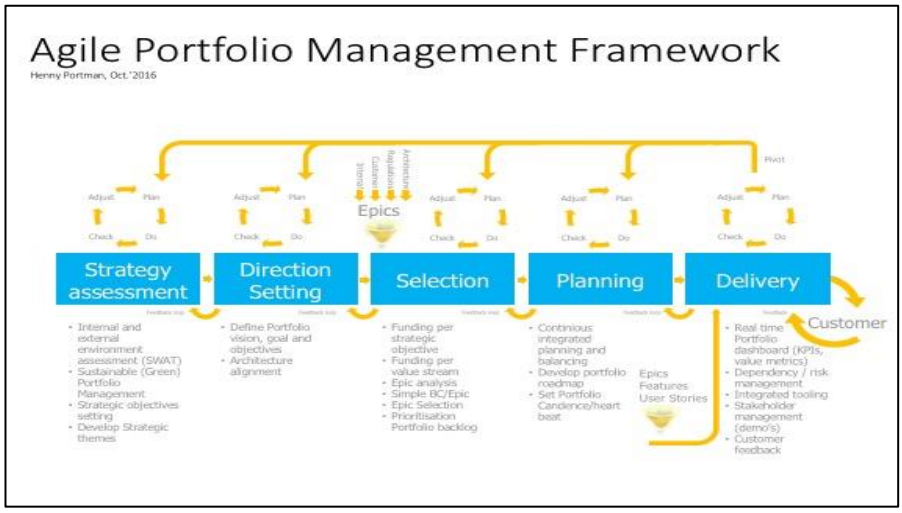

Figure 9: The agile portfolio management framework
(Portman, 2016)

The main strength of this framework is that it is in-depth and cohesive, but still incredibly flexible and adaptable for different organizational needs. It also has a framework full of checks and balances built in throughout the process. Some frameworks include a few of these, or simply rely on recording throughout and a review at the end on success so that they can adapt and adjust for future projects. Agile takes this a step further by adding in reviews and adaptation points within and between each of the steps and again at the end deliverables so that it can adjust issues before they make it to the deliverable stage.

This intensive process does, however, lead to one of the biggest weaknesses of this framework as well. Many firms, particularly the vast number of SMEs throughout almost all industries in every country, do not have the necessary resources to employ this type of intensive framework. As such, the framework is not as accessible as some of the other available frameworks. One other weakness is that it is not the most useful framework in all situations – even for those organizations with the necessary resources to employ it. As was mentioned in the article by (Trapani, 2014), the Agile process is not as useful when there is little uncertainty about the projects being undertaken. Finally, Agile requires quite a bit of training in order to implement the system effectively (Trapani, 2014). While this is not necessarily the biggest downfall, it can mean more needed resources, and more of employees' time spent away from the regular business functions.

- Project Portfolio Management Framework – By Matilda Alexandrova

This framework was developed by Matilda Alexandrova, who is currently a full-time professor at the UNWE (University of National and World Economy) which is located in Bulgaria (UNWE, 2018). She is a member

of the faculty of management and administration working in the department of management specifically (UNWE, 2018). She holds a PhD in management from the UNWE as well, which she achieved in 2000 (UNWE, 2018). As evidenced by Google Scholar, she has written and co-written many academic papers on a variety of management and business-related topics including entrepreneurship, IT (Information Technology) outsourcing partnerships, and project management to name a few (UNWE, 2018). The majority of these focus on a primarily Bulgarian or at least European outlook for the topics.

The framework she developed, outlined in Figure 8: Project Portfolio Management Framework, is representative of the general strategies that are employed in project portfolio management in order to achieve a successful project portfolio management framework. It is a framework that can be used to introduce project portfolio management into initiatives designed to improve functions in the organization (Alexandrova, Stankova, & Mladenova, 2016). In this framework, project portfolio management is seen to achieve comprehensive procedures for the selection of projects while simultaneously executing these, as well as continuous monitoring and control, in order to follow the strategic goals of the organization (Alexandrova et al., 2016). This is the premise that Figure 10 is built upon. As it is a framework specifically regarding portfolio management, it is a component to innovation, but not as comprehensive as a fully formed innovation framework.

There are four points in the framework that work together as a cohesive unit to achieve the strategic goals of an organization. These are the evaluation of resource capacity, the prioritization of projects, the optimization of portfolios, and the minimization of risk within and across projects. When completed together, these four tasks make up a comprehensive portfolio management framework.

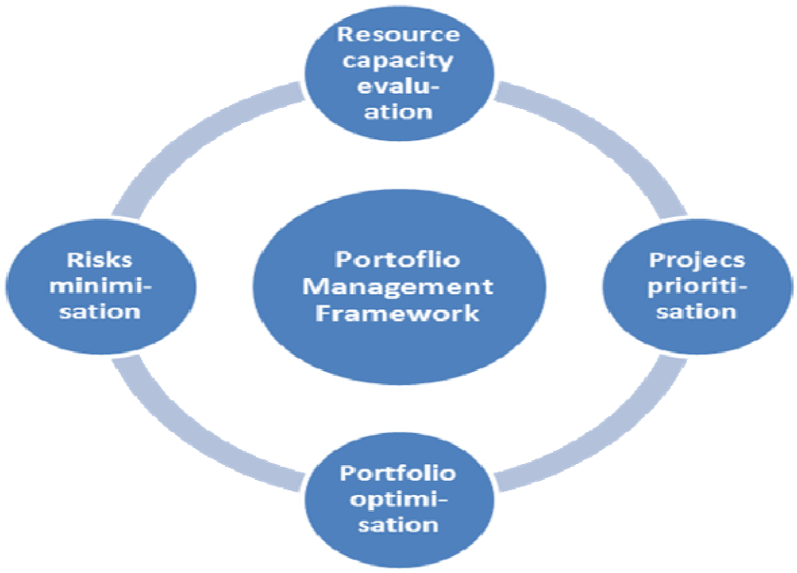

Figure 10: Project portfolio management framework
(UNWE, 2018)

This framework points out four general tasks that should be performed in order to achieve successful portfolio management for projects. All four of these tasks are possible to undertake by any organization in a variety of industries due their broad-scoped nature. This being said, the project-focused nature of the framework means that it may not necessarily be useful for all organizations. While many SMEs are naturally more project-based, this is not the case for many larger organizations, some of whom use portfolio management in other contexts such as with their financial initiatives.

This framework is useful in that it is very broad, and the concepts are overarchingly applied in many industries. This is a strength of the framework, in that it is fairly flexible and adaptable to each specific organization, especially since no particular steps have been identified towards achieving each of the four prongs. Other than this however, the framework does not have many other overwhelmingly positive factors.

One of the weaknesses of the framework is that it does not give much help in terms of how to apply each of the prongs it mentions to achieving project portfolio management. While this is an easily fixed issue with some research, it may be more time and effort than some firms are willing to take. Another downfall of this framework is the specificity of its application. While the framework itself is quite vague in terms of specific steps, it is quite specific in terms of what it is indented to achieve within an organization, this being successful project portfolio management. As mentioned earlier, this is only a component to innovation management, and is only a sub-category of portfolio management, thus making the framework less useful in organizations who are looking to implement a more rigorous and encompassing framework to improve their strategic achievements through innovation.

- PortfolioStep – By Tenstep Inc.

Tenstep is a consulting and training organization dedicated to helping other companies implement their strategies and strategic goals through the implementation of project management (Tenstep, 2019). Their consulting services center help organizations to develop a work environment that is conducive to project success (Tenstep, 2019). Some of the techniques and tools they employ to help with this are PMOs (Project Management Offices), methodology customization and deployment, portfolio optimization, strategic planning, and contract staffing (Tenstep, 2019). In terms of their training services, they are aimed at building competencies in project managers, company managers as well as team members, which they do through training classes and programs for organizations (Tenstep, 2019).

Figure 11: PortfolioStep portfolio management process

(TenStep Inc., 2007)

The process framework outlined above in Figure 11 is a framework that can be applied to the project portfolio management process (TenStep Inc., 2007). It consists of four main areas which are Preparing, Planning, Executing, and Harvesting. These four phases are then broken down into ten steps (TenStep Inc., 2007). Theses phases, while organized in a sequential fashion, do not necessarily need to be performed in sequential order, as that is not often the way project management functions (TenStep Inc., 2007).

In the first phase, preparation entails both categorization, which is where the scope of the portfolio is defined, and identification, which is where the context, or what is important to the organization, is identified and understood (TenStep Inc., 2007). In the planning phase, there are four key steps, those being evaluation – where work starts to get scaled back, selection – where the portfolio items are selected, prioritization – where the chosen projects are listed in order of importance, and balancing – where the prioritized items are organized in a way that best suits the organization's strategic goals (TenStep Inc., 2007). The execution phase is all about authorization of the various portfolio items and the intended resources and budget allowances, as well as activation of the project through scheduling and executing the actual portfolio (TenStep Inc., 2007). The final stage is harvesting, which refers to reaping benefits and assessing the value of them (TenStep Inc., 2007). In this step, reviewing and reporting occurs where results are measured and any changes are integrated and a review of the process is conducted (TenStep Inc., 2007). The final portion of the harvesting stage is strategic change, which occurs over the longer-term with the collection of results when products have been launched and the benefits start to be recorded (TenStep Inc., 2007).

This framework can be applied to a variety of organizations looking to implement a portfolio management framework. It would appear that the vast majority of companies currently using Tenstep's services and the portfolio management framework are larger organizations such as Coca Cola, ChildFund International, Wells Fargo, and Emery University (Tenstep, 2019). While this may not be indicative of an increased usefulness towards larger organizations, it should be kept in mind. In terms

of the industries in which companies who are using this framework reside, it would appear to be a much broader mix. Companies from food and beverage manufacturing, universities and academic organizations, nonprofits, financial organizations, and other consulting firms are a few of the types of entities currently using Tenstep's processes (Tenstep, 2019). From this, it would appear that the framework can apply well to a variety of industries and types of organizations.

This framework has some notable strengths. One such strength is that it breaks down the process into more specific steps and initiatives to achieve within each step so that everything within the framework is clear. This has not been the case with some frameworks which have either been too vague or so specific they become complicated to follow. Another strength is that it establishes that while the visual framework is linear, the steps can be mixed up in order, and done multiple times depending upon the needs of the organization. While the linear nature of the general process allows for a useful flow and structure, these are simply the building blocks and the framework is flexible enough to change around steps and phases, depending upon the needs of the company, and the particular portfolio in question.

This being said, there are some shortcomings with regards to this framework. To start, the applicability of this framework towards smaller organizations has yet to be seen en masse. While the specific steps and structured nature of the framework is useful in terms of clarity, they have the downfall of narrowing the scope of industries and organizational set-ups and sizes that will find it useful. This, in addition to the great number of large corporate entities that use their frameworks and services, leads to the conclusion that this framework may not be SME-friendly. The only other downfall of note is that the framework, being specifically a portfolio management framework cannot be applied quite as much throughout an organization, instead being confined to the departments or units that deal specifically with projects.

- Innovation Portfolio Management Process (framework) – By Paul R. Williams

Paul R. Williams is a Project Management Professional (PMP) who is currently the Executive Director for the American Institute of Innovation Excellence (Williams, 2011). The American Institute for Innovation Excellence is a non-profit research think-tank that is dedicated to pursuing excellence in innovation management (Williams, 2011). The organization gives charitable donations to government agencies, and corporate entities, while the research, development, education and publications for future practices help to forward the ‘greater good’ (Williams, 2011). Paul R. Williams has proven experience in executive-level innovation and leadership success, and over ten years of experience (as of 2011) directly

working in consulting, training and thought leadership (Williams, 2011). On top of all of this experience, he is also the author of two books on innovation (Williams, 2011).

The process model was developed as a reaction to a perceived need to update the innovation frameworks in use, most notably the Stage Gate framework (Williams, 2011). It is a new approach to innovation management that combines the idea of portfolio management with the other less specific innovation management techniques often in use (Williams, 2011). This update was deemed necessary by Williams as businesses slowly move away from a traditional R&D department dependence to a business model where innovation is more thoroughly integrated (Williams, 2011).

As can be seen in figure 12: The Innovation Portfolio Management Framework, the framework has five main sections, or modules, set in a sequence with feedback loops linked throughout the process. Strategy and Concept are the two first modules, both of which feed into the next module which is developing the Portfolio. After this, there is a feedback loop between the Portfolio stage and the Execution stage which once finalized leads to the Delivery stage. There are also feedback loops from each of the three stages (Portfolio, Execution, Delivery) to the Strategy and Concept development stages. A list of the major functions of each module are also included in the framework for increased context and structure. While each of these sections can stand alone as individual business functions, they are also interdependent on each other (Williams, 2011). In this model, both strategy development and concept development are accounted for, and both are weighed to be of equal importance.

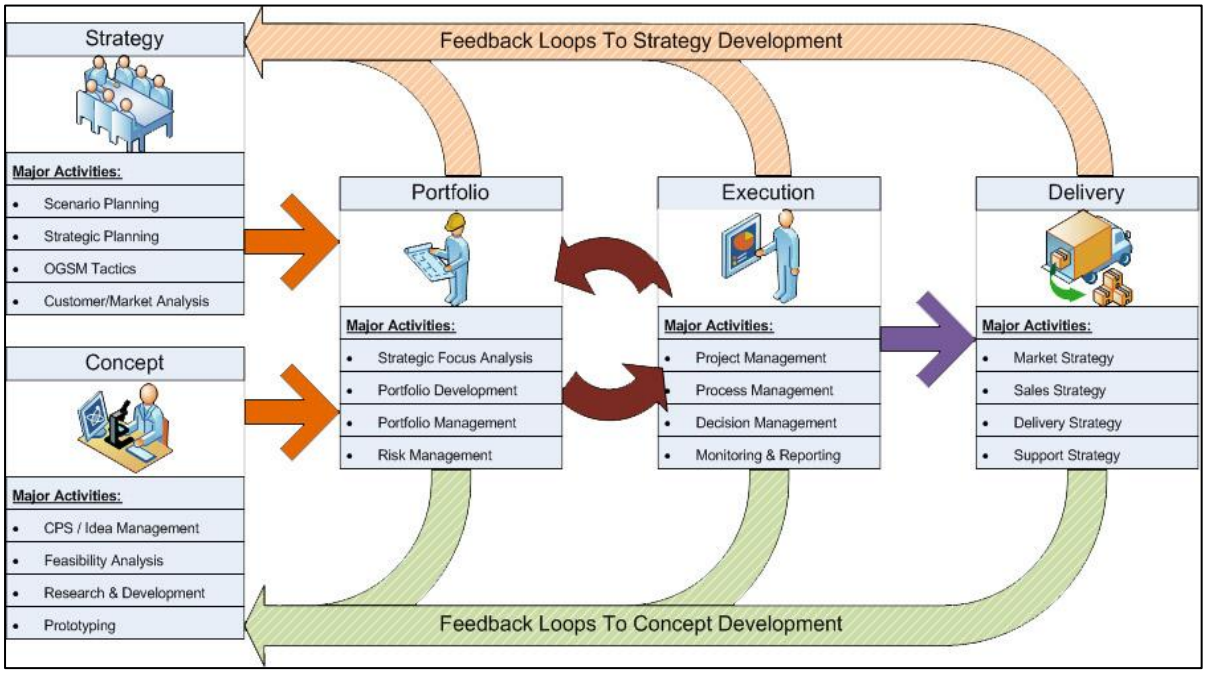

Figure 12: The innovation portfolio management framework
(Williams, 2011)

This framework was designed in reaction to the shortcomings of the Stage Gate suite of innovation frameworks. It is designed to be used in organizations where innovation is more central to all business functions rather than the responsibility of a single business unit (Williams, 2011). This is important because it means that the framework in theory will be more applicable to a wider range of organizations. For example, it will be more applicable and useful to SMEs since it is directed towards an organizational set-up that is more in-line with start-ups and smaller firms. In terms of industry, this framework has portfolio management as a central aspect. On top of this, the framework was developed with product innovation in mind which makes it slightly less applicable to those industries that do not produce products. This being said, the double focus on both strategy development and concept development counteracts this a bit, making it still applicable to organizations who are service focused or interested in applying innovation to their business processes.

From the review of this framework it has some apparent strengths. To start, the focus and equal weighting of strategy and concept development makes this framework much more well-rounded and balanced than many of the other frameworks reviewed. In addition, the numerous feedback loops incorporated into the process point to checks at each stage so that by the delivery any issues have been smoothed out. Finally, the framework is well-structured, meaning that it has appropriate boundaries, limits, and flows but does not have so many that the framework becomes too rigid to be applied to different organizations.

While this framework has many positive points, it does still have some downfalls. One of the main issues with this framework is that it does not include anything about recording information throughout the project process. While the feedback loops are important to help the project at hand meet a successful conclusion, they do not necessarily point to a record of what mistakes were made, what techniques were beneficial, or what pitfalls to avoid in the future. The only step where this is mentioned is in the delivery phase where ‘generated lessons learned can be captured’ (Williams, 2011). While this is a start, and will with no doubt be useful, important pieces may get forgotten during the process if not recorded throughout and therefore the same mistakes made over and over in subsequent projects. One other smaller issue with this framework is the question of its applicability to SMEs. While there are pieces of the framework that will fit better within an SME than some of the previously reviewed frameworks, the framework was still largely based for larger organizations, which will inevitably include the larger SMEs, but may still not be flexible enough to capture them all.

A general glance on a comparative summary for the above thorough analysis would look as follows:

Table 2: Comparative insights into existing frameworks

Project Portfolio frameworks	Innovation management frameworks
Portfolio management and enterprise management framework (specific applicability) (cross-over with project management) (Georgia Tech Strategic Consulting, 2018)	Channelvation innovation framework (Broadly applicable) (Future of Channels, 2018)
Agile portfolio management framework (broadly applicable) (Portman, 2016)	Business model innovation (Broadly applicable) (Klokgieters, 2018b)
Project portfolio management (broadly applicable) (some cross-over with project management) (UNWE, 2018)	Innovation diamond (specific applicability) (Stage Gate Incorporation, 2019)
PortfolioStep (broadly applicable) (TenStep Inc., 2007)	Decision driven innovation framework (specific applicability) (Decision Driven Solutions, 2008)
Innovation portfolio management process (broadly applicable) (cross-over with innovation management) (Williams, 2011)	Frost innovation framework (broadly applicable) (GasLabs, 2018)

The table above outlines more compactly the comparisons between the mentioned frameworks and some of the bigger interconnections. It should be noted that in every case there is a bit of cross-over between the various types of management (project, portfolio, innovation) because all three are interconnected processes.

2.3.5.Conclusion

After reviewing many of the frameworks used today for portfolio and innovation management within firms, it is clear that they all have their pros and cons. While all of the frameworks described above have many beneficial components, not one of the frameworks is able to combine all of key approaches in a manner that is both structured enough to provide a useful process, while still being flexible enough to allow for any type of organization in a variety of industries to implement the framework successfully.

Some key features have been identified from the numerous frameworks as useful take-aways. In looking to create a new framework, it will be important to keep in mind the strengths of previous frameworks. As such a list of these positive factors have been identified below.

1) Recording and measuring. It is important for frameworks to include some sort of record keeping and measurements so that lessons can be learned and applied in the future;

2) Holistic. When looking at innovation, it is helpful to have a more holistic outlook. A framework that incorporates a variety of approaches, and business units will increase the success of innovation organization-wide;
3) SMART. When frameworks have goals, specifically SMART goals, they are more likely to achieve success than frameworks that are vague and do not have much in the way of goal-setting;
4) Structured flow. Frameworks should have some structure, and when trying to encapsulate something as diverse and intricate as innovation, they should give some flow of process as this makes them more clear and easier to implement;
5) Flexible. Somewhat counter to point 4, frameworks should be flexible enough that they can be applied in a variety of situations and organizations. This means not being so specific and structured that they become rigid;
6) Clear. Frameworks work best if they can be understood;
7) Checks. Frameworks that had built in checks, balances, and feedback loops allowed for adjustments within the processes the frameworks were built for. This is an important component as it allows for innovation initiatives to be constantly adapted and pitfalls in projects can be avoided before the project is completed, saving organizations time, resources, and money.

Basing the new framework to be developed off of the strengths of the frameworks discussed will allow for a solid starting point.

It is, however, important to also note the ways in which these frameworks went wrong, or what their weaknesses were. By doing so, any new framework can avoid some of the major issues that were seen in numerous frameworks. These weaknesses have been listed below.

1) Too vague. Some of the frameworks did not seem like frameworks at all, but instead very general models. This seems fine as a guidance but without any expertise in the areas, or what tools can be used, the framework will not be as useful;
2) Too specific. Another issue with some frameworks was that they went too far the other way and became incredibly specific. This can do two things: one it can make the framework too rigid, reducing its applicability, and two it can become convoluted and confusing to follow;

3) Missing pieces. Some of the frameworks discussed did not take some key factors into consideration. They were missing approaches or key pieces of data that could have been highly useful and helped to address some of the shortcomings seen in the framework.

It is important to consider both the strengths and weaknesses of previous frameworks when looking to create a new framework. This ensures that the new framework is not going to make the same mistakes as previously developed frameworks.

Overall, there are many things to consider when putting together portfolio and innovation frameworks. This makes it difficult to create a comprehensive framework that takes all of the factors into consideration. While some organizations have been able to achieve a more useable and holistic framework than others, this has been a process. Frameworks have seen improvements over the years, by building off of each other and the research that has been compiled in the fields of innovation and portfolio management. This trend should continue, as this will make innovation and portfolio management practices within organizations stronger and more adaptive moving into the future.

2.4. The Canadian industry

A closer look into today's construction and building materials industry in Canada shall show important facts and figures along with highlighting some dramatical changes that are happening as a result of a number of key developments and trends in the country. These facts, analysis, challenges and other matters are to be demonstrated in this section.

2.4.1.Project management in Canadian SMEs

As has been demonstrated, project management is an important tool that can be used by organisations, particularly SMEs, to improve their businesses and achieve change through business strategies and objectives. This is no different in the Canadian context, where SMEs make up over 99% of the economy and are a very big driver of the country's economic growth (Government of Canada, 2013). The manufacturing sector in Canada is especially impacted by the productivity of SMEs as they make up a large portion of the workforce (Behrens & Bougna, 2013), particularly with regards to small firms as they make up the majority of the manufacturing sector, with 70% of firms only employing between 1 and 20 individuals (Behrens & Bougna, 2013).

In the Canadian context, there are a variety of different challenges and prospects for project management faced by SMEs. There also exist a variety of approaches that organisations are currently

using to overcome the challenges and to benefit from the prospects. Finally, there exist approaches to addressing these challenges and prospects that have been adopted by firms in other countries or which have been put forward by the academic community that could be applied in the Canadian context. The next section of this thesis will address these challenges, opportunities, and approaches to project management as they exist for Canada.

- Challenges

SMEs worldwide face many of the same challenges in terms of their vulnerability in the global business environment and the knowledge-based economy that exists today (Raymond et al., 2013). This is no different in Canada, where the same global economic forces effect SMEs.

One of the biggest challenges faced by SMEs with regards to project management is the constraint that exists on their available resources (Banaszak et al., 2009). All firms will face resource constraints at some point, if for no other reason than that many inputs are non-renewable and not readily available from an ecological, or supplier standpoint (Wheelen & Hunger, 2012). Resource constraints for SMEs are generally of higher concern though due to less available funds and employees within these smaller organisations (Mcadam et al., 2007). SMEs also tend to be more project-based and are often managing multiple projects at once all using pooled resources (Banaszak et al., 2009). To make the resource strain even higher, the divergent project objectives must also be taken into account (Banaszak et al., 2009)). Project management in SMEs should therefore be incredibly careful in resource allocation and use throughout a project's lifecycle to ensure that other projects also be conducted using the same resources are not left without them.

Another challenge facing project management, and in particular project managers in SMEs, is how diverse, flexible, and informal SME cultures and organisational structures seem to be (Murphy & Ledwith, 2007; Snider et al., 2009). Project management can be done using a variety of different leadership styles, but which one will work best to lead to a successful project will differ greatly between organisations and even between projects. While this diversity and fluidity is part of what makes SMEs so good at developing innovative solutions, it does pose a challenge for individuals managing projects as they may have to change their management approach to accommodate cultural and project-specific differences when working on different projects or for different SMEs.

While there has been a lot of research done on effective project management, research on SMEs is lacking significantly compared to research performed on large corporations (Szczepańska & Kurowska, 2016). This poses yet another challenge for SMEs looking to gain knowledge on how to properly

implement project management in their firms. One reason behind why research is so much sparser for SMEs than it is for larger organisations may be due to the fact that they are so much more diverse than their large corporate counterparts (Murphy & Ledwith, 2007).

As well, research is sometimes funded in whole or in part by organisations that want information but do not have the time or the know-how to perform it themselves. Often, this funding will come from larger corporations given that many SMEs lack the financial and human resources to support these types of initiatives (McAdam, 2002). It makes sense of course that projects funded by large corporations will want research performed that directly applies to them, not to the smaller organisations they are competing against. Project management research performed on and applicable directly to SMEs, is therefore less common than project management research directly regarding larger organisations. Often research uses a broader context that does not address the specific approaches, challenges, opportunities, or the importance of project management to SMEs (Snider et al., 2009).

Project managers in SMEs also face the issues of isolation, as smaller organisations do not have the need or the resources for a project management office (Lee, Reinicke, Sarkar, & Anderson, 2015). This does not help project managers to develop and improve their practices and skills through interactions, and also has negative impacts on morale (Lee et al., 2015). This coupled with the reality that project managers at SMEs generally have limited formal training (Snider et al., 2009), leads to another major challenge to innovative capability and project success within small and medium sized organisations.

Finally, there are project management practices in Canadian SMEs that are not being done as well as they could be (Loo, 2002). These are both technical and people-based competencies that are therefore creating barriers to effective project management (Loo, 2002). In terms of the people-based competencies of SMEs in Canada, organisations are lacking in training for things like conflict and stress management, team building, motivation creating, and communication skills among others (Loo, 2002). This is not only for managers, but for regular staff members as well (Loo, 2002). In addition, many organisations do not take advantage of team and group reward/recognition, opting more often for individualistic based merit systems alone (Loo, 2002).

- Prospects

There also exist many prospects, or opportunities, through project management for SMEs in Canada. One of the biggest opportunities that project management presents is one of managing and striving for best practices (Loo, 2002). ‘Best practices’ in a company refers to the optimised way of performing methods and processes, and its goal is to achieve higher performance (Loo, 2002). Best practices can

consist of a variety of different approaches, and while much of the literature surrounding it focuses on competition between organisations, this is not the only form that best practices can take (Loo, 2002).

One of the opportunities that exists for SMEs deals with the processes in place for recording and comparing projects and process in an attempt to achieve the best results (Loo, 2002). Benchmarking, a best practice technique used by many organisations, is the practice of comparing or evaluating practices, policies, products, etc. by comparing them to a standard (Business Dictionary, 2019b). External benchmarking is the more common practice taken up by SMEs (Loo, 2002). This is when a comparison is made to other organisations who have the current best practices and the best results (Loo, 2002).

The less employed method of internal benchmarking represents an opportunity for SMEs to take their project management to the next level (Loo, 2002). Regardless of the form of benchmarking being employed, the information gained from it is used to make improvements in the company (Business Dictionary, 2019b). For internal benchmarking, the comparison can be achieved through recording their activities and results, so that they can use their own best practices to improve their business (Loo, 2002). Essentially it is a simple tool of competing against themselves in a more structured manner.

In project management, the use of internal benchmarking is a relevant opportunity due to the low levels of record keeping and the lack of use of those records that are recorded (Todorović et al., 2015a). By adopting a more rigorous approach to monitor projects and practices, SMEs would be able to more efficiently improve their standards of practice. Given that projects are one of the most effective ways to move businesses towards their goals and implement strategies (Dixon, 2000), internal benchmarking for project management practices represents a prospect for business, innovation and strategy improvement within SMEs across Canada.

Another opportunity that exists for Canadian SMEs is the use of technological planning and organisational tools. One such tool which has seen growth and promise in SMEs is Enterprise Resource Planning, or ERP (Snider et al., 2009). ERP has been around since the early 1990's, as a system that pulled together many separate systems that existed previously (Jacobs & Weston, 2007). It can be defined as interactive online-based systems which use a common database across the organisation and its functional units to allow for cross-functional integration (Snider et al., 2009). For most of its existence, research on ERP and its implementation has been directed at large corporations, however this has started to shift with SMEs beginning to use various ERP systems (Snider et al., 2009). While these systems are becoming more popular for SMEs, the innate differences between them and larger

corporations raises some questions. These questions are namely about how it can be implemented effectively if it is a planning system that was originally designed for corporate entities (Snider et al., 2009).

Besides the barriers that SMEs may face from implementing a system primarily developed for corporate enterprises, it still represents a promising system to help organise and standardise planning processes within project management (Snider et al., 2009). While ERP represents a significant opportunity, it must be recognised that without further understanding of the differences between SMEs and large corporation, and how these differences effect the business, ERP implementation within SMEs will continue to be a slow process which in some cases ends up not being useful.

- Approaches

There are a variety of approaches that are being applied by Canadian SMEs to forward their opportunities with regards to project management as well as to mitigate and overcome the challenges that exist with it. There are also approaches that are being applied in other countries which may also be useful tools for Canadian SMEs to adopt in their journey with project management. Unfortunately, the literature is sparse with regards to SMEs in general, but especially when searching for research performed in a particular country. While some of the approaches discussed will regard Canadian SMEs specifically, some studies on project management approaches that are broader in scope, or that pertain to other countries specifically will also be discussed.

To start, some of the approaches utilised currently by Canadian SMEs will be discussed. In the product-driven manufacturing industry, many SMEs both in Canada and Internationally, have switched to a project-oriented style of operation, since they are often under the pressures of multiple projects at once (Banaszak et al., 2009). This operation format means that they have need for managers who are highly skilled at managing projects, as well as the day-to-day operations (Snider et al., 2009). With a system built primarily on project effectiveness and efficiency, project management techniques and tools are of high value. While not all SMEs are entirely project-based organisations, the useful approaches to project management are still relevant for the projects they do undertake.

Often, project management focuses on a variety of management and procedural techniques, as well as tools such as Agile or ERP (Snider et al., 2009). Leadership approaches to project management are often of import to project management as well. Due to the more flexible nature of SMEs and the diversity represented by the grouping of firms, there are a variety of approaches that may be utilised. These approaches range from the very formal top-down management styles used in hierarchically

structured corporate firms, to much more inclusive and teamwork-based leadership styles such as transformational leadership (Feng & Liu, 2011).

Finally, a project management approach discussed in the literature in the context of SMEs in another country will be deliberated. This approach is used by some Irish SMEs (Murphy & Ledwith, 2007). In the study performed by (Murphy & Ledwith, 2007), it was found from the firms that responded to their survey that traditional and matrix style organisations were used by SMEs (Murphy & Ledwith, 2007). Matrix style organisations are those that use a mix between traditional hierarchal structures and the pure project-based structures. It was also found that projects undertaken were often small, rather than the larger and more complicated projects sometimes undertaken by large corporations.

2.4.2.SMEs investments into project management

As has been demonstrated, project management is important to Canadian SMEs. However, not all small or medium sized businesses believe that project management is something that they can or should employ (Buxton, 2014). One of the biggest reasons behind this hesitation towards the use of project management has been the impression that to employ project management you need extra resources, something that very few SMEs have at their disposal (Buxton, 2014). This of course does not need to be a barrier for investment in project management, and as the research into project management and its implementation in SMEs has grown, so have the number of SMEs that choose to employ project management strategies within their business.

This importance of project management and the ambivalence towards it is no different for the manufacturing sector in Canada. This being said, manufacturing sector SMEs are seen to perform many projects, whether they be for innovating new products, innovating new organisational processes and procedures, or restructuring business functional units. Since manufacturing firms, particularly manufacturing SMEs, in Canada use projects so often, it is important that they invest in project management just as much, if not more, than other industries in Canada (Banaszak et al., 2009). Manufacturing SMEs have invested in project management because it is a useful tool for advancing projects, which makes it important for innovation and in driving forward strategic initiatives.

Project management is something that Canadian manufacturing SMEs have already invested in over the years. One example of this is in a study done by (Snider et al., 2009) from the University of Calgary, Canada, on five Canadian SMEs. In this study, the implementation of Enterprise Resource Planning, or ERP systems was analysed to find the critical success factors associated with its application in SMEs. As well, the study aimed to address the issues faced by SMEs in implementing systems that were

designed for larger organisations (Snider et al., 2009). ERP, as mentioned previously, is a useful tool for project managers but has in the past been primarily developed for use in larger corporate entities. As it has benefits within project management, it has therefore been increasingly applied to SMEs. This study is particularly relevant because four of the five organisations that were studied were manufacturing companies, with the fifth one being a distributer of natural resources (Snider et al., 2009). Of the four manufacturing companies, two were electronics manufacturers, one was a chemical manufacturer, and the final company, which was the most relevant to the construction and building materials sector, was in the heating and plumbing industry (Snider et al., 2009). Three of the five companies were under the designation of 'Small' companies while the other two fell under the category of 'Medium' (Snider et al., 2009).

In the study, six critical success factors were discovered from their analysis. These were as follows:

1) Operational process discipline;
2) Having small internal teams;
3) Strong project management focus and capabilities;
4) External end-user training;
5) Management support; and
6) Having qualified consultants (Snider et al., 2009).

While some of these factors overlap with success factors for ERP implementation in large firms, others were specific to SMEs (Snider et al., 2009). More research is needed on systems such as ERP for their use in SMEs, but the success factors identified by this study are a starting point for SMEs with the desire to apply such software solutions in their organisation and achieve successful results.

Since manufacturing SMEs are required to develop products, and continually innovate these products to remain competitive, a project-based development strategy is beneficial in allowing them to adapt quickly to the changing market (Banaszak et al., 2009). Having effective project management will aid in this process by allowing management and the company in general to make fast and accurate decisions (Banaszak et al., 2009). In a world which is increasingly based online, project management needs to address both the real-world constraints and the online project management decisions at the same time (Banaszak et al., 2009). With this added layer of complexity to organizational structure, effective project management becomes even more important for Canadian SMEs to focus their energy on.

Other benefits that exist for SMEs, with the employment of project management, include lowering costs, making the company more efficient, and improving customer satisfaction (Buxton, 2014). Not only this

but implementing project management practices can even help in improving employee morale which starts a positive feedback loop by making employees who engage with customers more attentive and happier, and by improving their enjoyment of work tasks thereby getting more done (Buxton, 2014). Although there will be an adjustment period for organisations and their employees when starting to implement a project management system (Buxton, 2014), the benefits outweigh any interim difficulties SMEs may come across. According to one SME owner who took on a project management revamping of his firm, there exist eight key benefits from project management initiatives (Buxton, 2014). These benefits have been outlined in Table 2: Eight Project Management Benefits to SMEs.

Table 3: Eight project management benefits to SMEs (Buxton, 2014)

Benefit	Short Description
1. Cost savings	Project management helps to keep projects within their budget.
2. Quality	Quality is improved so customer satisfaction is much higher. Retention levels of clients is also improved.
3. Time management	Project management allows for intelligent breakdowns of time, tasks and resource distribution, sometimes to the extent of reducing lead times. Early identification of issues helps to fix things when they are smaller and less time-consuming than they would be closer to the project's end date.
4. Resource allocation	The allocation of resources, staff and their skills are better managed and monitored.
5. Communication and transparency	Due to having a named individual with overall responsibility for project delivery, communication between all stakeholders as well as transparency of projects is improved because everyone knows where to go for decisions and information.
6. Risk mitigation	By using more of the on-site expertise, organisations can steer clear of issues that they would have otherwise ran right into. While project management is not foresight, it is the closest thing to it.
7. Opportunities	Project managers do not have to deal with any of the day-to-day activities and issues of the business and therefore are able to focus on a bigger picture, which often leads to better processes and systems being identified by them that otherwise would have been missed and not taken advantage of.
8. Futureproofing	With record keeping initiatives, previous project management endeavours can be used as roadmaps of do's and don'ts to be applied to current and future projects.

Depending on the type of project management leadership style that is employed, project management also benefits organisations in that it develops the skills and knowledge of team members and fosters a culture of innovation, creativity, and inclusivity. The style of leadership which most fosters these

qualities in an organisation's employees is called transformational leadership (Feng & Liu, 2011). Project managers who employ this exhibit four key behaviours which are listed below:

1) Inspirational motivation which includes developing and implementing a shared vision, with expectations for subordinates and the project in general that are motivating, inspiring and challenging;
2) Idealised influence, which entails serving as a role model by acting in a way that aligns with the shared vision;
3) Intellectually stimulating individuals to challenge assumptions as well as to seek their subordinates' ideas and solutions; and
4) Individualised consideration, which refers to treating all team members as individuals with unique skills, knowledge bases, and strengths – essentially attending to their needs and fostering trusting relationships (Feng & Liu, 2011).

These four leadership qualities taken together have been linked to improved task performance, contextual performance, and creative performance, all of which play particular roles in projects (Feng & Liu, 2011).

In the manufacturing sector, this style of leadership can be particularly useful in project settings. Innovation has been deemed one of the key factors impacting the growth and success of SMEs (Raymond et al., 2013). With business environments becoming increasingly more complex, manufacturing SMEs need to prepare and react appropriately if they wish to stay competitive. In general, organisations can do this in one of two ways (Raymond et al., 2013).

With growth-oriented manufacturing SMEs want to increase their competitive advantage through expanding into new markets and developing their technological leadership and product innovations (Raymond et al., 2013). Project management comes in as a helpful tool in achieving this growth initiative through increasing innovative capabilities, developing leadership skills, and to a lesser extent, identifying new markets. For manufacturing SMEs that focus more on their productivity with a defensive outlook and are therefore concerned with reducing costs and improving their deliverable capabilities, innovation comes into play in another way (Raymond et al., 2013).

With SMEs focused on these aforementioned defensive methods for remaining competitive, innovation and project management will be important for improving their processes, essentially streamlining their internal procedures to ensure cost savings, both for the organisation and for their buyers (Raymond et al., 2013). The distinction between the two approaches for staying competitive is in the type of

innovation they pursue. Product innovation and process innovation are both important components in organisations, and manufacturing firms can use either approach or a combination of both to achieve their strategic goals (Raymond et al., 2013). The benefits of employing project management, regardless of the approach, resides in the structure and focus that it offers to SMEs which tend to be less structured and more flexible by nature (Semrau et al., 2016; Tidor et al., 2012).

2.4.3.Portfolio management in manufacturing companies in Canada

Portfolio management is important in the manufacturing industry as it can be employed as a tool for both the management of projects as well as the management and decision processes used to decide which products to pursue. Manufacturing organisations deal with the creation of products, and therefore portfolio management is useful to them on a number of levels. As portfolio management is a relatively new sub-field in the realm of project management, the research both in general, but particularly in the Canadian setting, is fairly sparse.

Nevertheless, some studies and literature reviews have been compiled here, so that portfolio management in the Canadian manufacturing industry context can be understood as much as possible. These will be integrated with other studies completed on portfolio management in manufacturing companies elsewhere in the world in order to supplement the lack of available Canada-specific information. In terms of manufacturing SMEs in Canada, the literature is even sparser given the specificity of the topic. Inferences will therefore be made from the existing portfolio management literature on both Canadian SMEs and Canadian manufacturing organisations, as well as from manufacturing SMEs in other countries.

For specific building and construction sector SMEs in Canada, the percentages of firms with 0-99 employees varies from industry to industry. Table 2: Construction and Building Materials Industry Breakdown, gives a more in depth understanding of just how important SMEs are to each sector of the industry in Canada (Government of Canada, 2016).

Table 4: Construction and building materials industry breakdown

Sector	% Micro (1-4 employees)	% Small (5-99 employees)	% Medium (100-499 employees)	% SME total
Architectural and Structural Metals Manufacturing	23.2	71.4	5.2	99.8
Veneer, Plywood and Engineered Wood Product Manufacturing	15.0	71.2	13.5	99.7
Petroleum and Coal Product Manufacturing (includes Asphalt Paving, Roofing)	28.2	62.1	8.2	98.5
Carpet and Rug Manufacturing	36.4	51.5	12.1	100
Plastic Product Manufacturing (includes pipes and pipe fittings)	19.1	68.4	12.0	99.5
Clay Building Material and Refractory Manufacturing	28.0	62.0	10.0	100
Cement and Concrete Manufacturing	17.5	78.4	3.9	99.8
Hardware Manufacturing	35.0	53.4	9.7	98.1

2.4.4.Facts and figures for SMEs in Canada

In Canada, SMEs are considered the backbone of the economy. Collectively, the number hits one million SMEs, over 75% of which are called micro-enterprises, each employing less than 10 people. Yet, only a small minority of companies, around 4% to 7%, experience sufficient growth to make significant contributions to overall job opportunities (Herman & Williams, 2013). More than half of small and medium-sized companies are concentrated in Ontario and Quebec, followed by Alberta and British Columbia. Meanwhile large companies only form around 0.3% of total Canadian businesses represented by 2933 enterprises concentrated mainly in Ontario (CS, 2016). In 2011, SMEs employed 63.7% of the private sector employees, which account for 6.8 million people across Canada. SMEs managed about 79,000 jobs, and over a period of 10 years - 2001 to 2011 - SMEs were responsible for 53.9% of all job opportunities in the private sector with 51,507 firms in the manufacturing industry, accounting for a total of 4.6% of total Canadian SMEs (BDC, 2013). Then in 2015, the Canadian SMEs within the private sector were responsible for over 80% of the private sector employment, with the majority of employees working for small businesses, constituting 70.5% (8.2 million), while medium-sized businesses employed 19.8% (2.3 million). In total, SMEs employed 90.3% (10.5 million) of the private sector workforce, populating around 95% of net job opportunities, signifying the important role SMEs play in employing Canadians across the country. The majority of these Canadian small and medium-sized businesses are service oriented. As of December 2015, and of all employer businesses,

916,527 (accounting for 78.5%) operate in the service-producing sector, with around a quarter of the Canadian businesses – 251,451 (21.5%) – operate in the production sector (ISED, 2016).

The growth of these SMEs can be considered an evidence of economic vitality due to their obvious major role in generating wealth in Canada, as in many other countries, where the majority of businesses (99.8%) are SMEs (CS, 2014). Moreover 71% of the jobs within the private sector over the last 10 years can be linked to SMEs' activities, thus it is obvious the importance to maintain SMEs as a strategic pathway for maintaining the economy and enhancing its growth. The measures taken for this purpose usually include reducing administrative burdens, reshaping tax policies that allow for growth and facilitate the access to financing as in most cases SMEs have very limited access to financial assets. Other than the business environment, that also plays a major role, the growth of SMEs depends on multiple factors and although SMEs differ with industry, location, origins and target markets, they all have common points that allowed some of them to be far better than others. The desire for growth is not the main determinant, although in 2015 a literature summary by HEC (École des Hautes Études Commerciales) from Montreal Center for Productivity and Prosperity, published by Louis Jacques Filion, states that the main foundations for corporate growth are its leaders and their commitment. Yet a business needs many capabilities to grow, other than a skilled management team and leaders. The business itself has to be able to meet the challenges of growth, which is not solely linked to qualified personnel, as the company has to have a good understanding of their target market and their clients' needs in order to adapt and innovate. In addition to the company's leaders, ability to capitalize on advanced equipment and technologies acquired for innovation is needed, in a sense of introducing new products and services, or by upgrading the businesses' processes and models. It is no secret that the business's financial capacity is also an important measure, and sustaining growth requires abundant resources to be able to generate sufficient cash flow and make operations more profitable. Finally, successful growth does not only depend on internal factors but the outside environment of the business where it operates. This includes the increased demand for the products or services, the access to qualified workforce, having a good supplier network and research centers within range.

A study was conducted by BDC (Business Development Bank of Canada) in which in-depth interviews with leaders of 25 firms across Canada, most of which being SMEs experiencing marked growth (Ratté, 2015). The interviews were followed by a designed questionnaire for a survey of 1,015 SMEs, allowing for a comprehensive picture of what the growth means, and a list of strategies that have been proven effective for those companies aiming to help a greater number of SMEs decide which path to pursue for growth. Subsequently the entire country would benefit, being SMEs the main Canada's economic

engine. The study concluded that the three dimensions of growth are revenue, profits and jobs, so for a business to be considered growing it has to experience an increase in revenue, profit or workforce in each of the last three years, without having any decline in these areas (Ratté, 2015).

In the same study issued by the BDC to identify initiatives for strategies that make the most significant contribution in achieving growth objectives, the BDC presented 12 business strategies to 25 business leaders and asked them to rate the level of importance of each on a scale from 1 (Very Important) to 4 (Not at all Important). The results came out as follows:

1. Be a client-centric business: Nearly 99% of leaders in the study mentioned that having a good idea of clients' needs and the way to satisfy them was very decisive in terms of business growth, reforming or modifying their product based on the client's needs and meeting their expectations. This strategy was unanimously supported without regard to the degree of growth, location, and size. An example of the latter strategy adopted by a Canadian company is Stemmler's which is a family business located in Ontario for the production, distribution and retails of meat products, with a main strategy based on meeting customers' needs suffering from health problems, food allergies and sensitivities while maintaining its commitment to quality and taste;
2. Build your talent pool: It was found that the leaders of growing SMEs pay special attention to managing human resources where 85% of them give priority to train employees while 72% prefer to hire more qualified people. Investing in workforce training seem to be more important for SME leaders that have ten million SME or more in sales, have at least five employees, and were located in Quebec. As for the other 72%, they were mainly leaders of businesses with 20 or more employees, have two million or more in sales and were located in Ontario. On the other hand, having a strong team of managers is the strategy that leaders of SMEs of strong growth and more than five employees focus on. An example of companies that utilized this strategy is "FCV Interactive" led by Johann Starke in British Columbia. For the years 2014 the company's profits rank 155 in the "Profit 500" ranking. FCV was highlighted as one of the fastest growing Canadian businesses with generation of many jobs, in both Canada and the United States, were two hundred people were recruited in ten years. For Starke, having a solid team that he trusts is what makes him feel comfortable, as a key success for the company, because for him, his amazing team of managers are the ones that come up with the ideas that enabled this company to push back the limits he initially has set;
3. Stay on top of your game, innovate: Not surprisingly, eight out of ten respondents (81%) stated that the success of their companies is linked to their ability to innovate. They also stated that

innovation went parallel with their understanding of the clients' needs in order to adapt accordingly. Similar to the latter two categories, innovation is one of the strategies that respondents have checked regardless of their company's level of growth, size, or location. An example of a company using innovation as a key success for their growth is Compass Compression Services, which is a fast-growing manufacturer of natural gas compressors that also process equipment for the oil and gas industry. The company has also expanded internationally and by growing its service division with revenues increasing by 40% every year for the past six years. Compass president John Forgeron states that thinking outside the box is the driver to their growth as the market is changing in conditions. Yet Canadian SMEs face a multitude of obstacles and hurdles. The obstacles to business growth that are most cited by Canadian SMEs are rising input costs and unstable demand. This causes some concerns that revenue will not be sufficient enough to allow for expansion, to grow and thrive. Many other enterprises report attracting and retaining workers as a major challenge, especially in SMEs where qualified employees are needed. On the other hand, over half of the medium-sized firms report employee recruitment and retention to be a major growth obstacle. Thus, growth obstacles are not uniform across the country and regional circumstances exist. Firms are most likely to report labor shortages and difficulties in attracting and retaining workers in places like Saskatchewan and Alberta, whereas Ontario firms cite the changes in demand and increased competition as the major obstacles. Overall, concerns about input prices, government regulations, and maintaining cash flows are significant throughout the nation (RBC, 2014).

4. Invest to be the best: In many cases, growth is dependent on the amount of invested resources in the firm and for that, 3 out of 4 SME leaders reported their focus on amplifying production capacity through investing in facility expansions or new equipment. Around the same number of entrepreneurs considered investment in high-end technology to be the factor enabling their sustained growth. It might be worth noting that companies based in Ontario (81% of companies interviewed) focused on adopting state-of-the-art technologies. An example of a company adopting this strategy is Sport Systems that manufacture and install sport facilities. This company does business with over 30% of Ontario's school boards and has increased its sales in the US and started taking major new customers in the Middle East. Sports systems consider everyone to have an equal chance, but to succeed you have to do it right and their strategy was handling anticipated growth by having an Enterprise Resource Planning system (ERP) that allow employees to have all the information they require at their fingertips, making it easier to identify

costs and manage inventory. The company also replaced the old computer-assisted design system by a new 3D software that has increased the company's efficiency in handling operations. In the light of the multi-leveled issues facing SMEs and with limited resources, their fastest way to boost productivity and economic growth is via innovation. Innovation is often thought to be synonymous with high-end technology, but innovative behavior in business encompasses a range of practices that include both technological inventions and operational optimizations. According to the CCA (Council of Canadian Academies), innovation means "new or better ways of doing valued things" (CCA, 2009). The word innovation is not purely synonymous with invention, although invention is a necessary precursor for innovation. The Oslo Manual (OECD, 2005) reflects the current international consensus that defines innovation and the multi-sectorial implementation that encompasses product, process, organization, and market innovation as follows:

- Product innovation: New products that include goods and services that have additional value typically foster more revenue because their novelty means less cost competition than standardized products. Research and development or even the aggregation of pre-existing technologies can be sources of product innovation that can meet customer demands better;
- Process Innovation: Product manufacture and delivery here are tackled to either reduce cost and/or enhance convenience for the end-user. Examples in this process include global supply chains, and internet-based shopping. A significant example of Canadian process innovation is the "Steam-assisted gravity drainage", a method for bitumen recovery oil sands;
- Organization innovation: In short, organization innovation aims to convert creativity, technology, and knowledge about customers into profitable innovations through integrating capital management, technology management, and strategic management into innovation-supportive structures;
- Market innovation: This includes entering high-growth markets like China or India, thus new geographic targets, or by how the market is addressed (e.g. using the internet).

Similarly, a survey on Financing and Growth of Small and Medium Enterprises in 2014 performed by Statistics Canada also divides innovations into product, process, organizational and marketing categories. In the 2007 survey conducted by Statistics Canada about 5 SMEs of Canadian SMEs were

being innovative (firms that spend 20 SMEs or more of their total expenditures on R&D were considered so). Of these firms, 10 SMEs were wholesalers or retailers, 14 SMEs were professional services firms and 24 SMEs operated in knowledge-based industries. The target population in the 2014 survey was the private sector of SMEs employing 1 to 499 people and generating over 30,000 dollars in revenues per annum in 2014. The survey data shows that over 41.7% of small businesses and 58.3% of medium-sized enterprises applied at least one type of innovation. Despite representing 97.9 SME of all employer businesses as previously mentioned, these small businesses accounted for nearly 27 SME of total R&D spending, while medium-sized businesses, which constitute 1.8 SME of employer businesses, accounted for about 18 SMEs of all R&D spending. This signifies that the availability of resources to spend on research and development is directly related to the size of the enterprise. Moreover, it is particularly noteworthy that SMEs spending on R&D has been in consistent dreadful decrease over the course of 2011–2013 in total, with the manufacturing industry being the most-innovative among others (61.5 SMEs), followed by wholesale trade (50.5 SMEs) and professional, scientific and technical services (45.0 SMEs). Transportation and warehousing, and construction, were the least innovative businesses, with only 31.0 SMEs and 36.4 SMEs respectively, within the last three years period (CS, 2014). Several recent reports as well emphasize on the innovation down drift in Canada, as the Global Competitiveness Report, which is an influential annual publication issued by the World Economic Forum, which states that Canada has had the soundest banks in the world for the last seven years (Schwab, 2014). Yet, this global leadership is not translated into leadership in competitiveness nor innovation as the same report says that, Canada ranks 15th in global competitiveness, down one spot from the previous year and five spots from the WEF's (World Economic Forum) 2009-2010 ranking, indicating a five-place retreats in five years (Schwab, 2014). Management and managerial skills are other reasons for the failure of Canadian SMEs. Almost half of the Canadian firms to go bankrupt is mainly due to their own deficiencies rather than due to problems being generated externally (Newton, 2001). Management skills are a critical driver of an SME's innovative capacity as they rely on management as a source for their innovation more than large firms do. Therefore, management skills' importance in the small business sector can be underestimated for a literature review on management development issued. In 2006, a study confirmed that small firms require specialized management programs for them to survive, grow and reduce the incidence of failure in addition to improve their performance (Rya, 2006). Organizations that are committed to foster an innovative culture have to develop leadership capacity throughout the firm. They need to invest for understanding the required skills for developing the leadership necessary. Leaders within an innovation-focused organization need

to have vision, flexibility, entrepreneurial skills, risk tolerance and commitment to developing human capital. This organization acquires true leadership that can support individual creativity that would result in sustainable growth for both the workers and the organization. Components of entrepreneurship (which can be defined as the mindset and process to produce and develop economic activity by blending creativity and innovation with management within either new or an existing organization) are business disciplines and individual initiatives (Ahmad & Seymour, 2008).

2.4.5.The Canadian building materials industry

The building materials industry is one of the important contributors to the Canadian economy, as it is also a major contributor to the housing quality in Canada.

Building materials consist of a variety of products for residential and nonresidential construction purposes. Among these building materials are:

- Concrete;
- Gypsum wallboard;
- Plumbing fixtures and fittings;
- Windows and doors;
- Roofing insulation;
- Bricks;
- Exterior cladding;
- Flooring and wood products.

Although these products differ, their manufacturing companies typically face the same problems that include the fact that they are subject to the same regulatory constraints (building codes and standards) that include province-wide and nation-wide regulations. In addition, they are exposed to changes in the demand for their products due to constantly evolving building technologies and practices. Moreover, these companies operate within the same, increasingly competitive, global market. Thanks to new technologies, these products have become more durable, more efficient with lower harmful emissions, contain more recyclable elements, and produce less waste at both the manufacturing and construction stages (CMHC, 2007).

It is important to mention here that a significant environmental impact is implicated by the building industry because it consumes more than 1/2 of the world's resources and uses 30 to 40% of the

world's energy (UN, 2009). For the past years, public and industrial demand for green building has significantly increased with a parallel effect on the construction industry. Both Canadian and international standards have begun to reflect the increasing priority of environmental protection and global climate change as social and consumer awareness of the green lifestyle and consumption have also increased recently in a rapid manner (GlobeScan, 2010). The term "green" is usually interchanged with "sustainable", while others feel that it represents a very different concept. The term "Green" used here is similar to the definition by the US office of the federal environmental executive that states that Green Practice is the practice of:

- Increasing the efficiency of water, energy, and material usage by buildings;
- Reducing the impacts of building on human health and the environment through better siting, design, construction, operation maintenance, and removal throughout the complete lifecycle; Pre-building, Building, and Post-building (Mackie, 2019).

Canada's green building industry is vigorous and growing according to the study conducted by McGraw Hill Construction along with the Canada Green Building Council (CGBC, 2014). The study basically is a quantitative industry survey for the core of which is a quantitative survey of building owners, architects and contractors. A series of interviews were done with green leaders to harvest findings that highlight the aspects of the Canadian Green Building sector in comparison to the US and globally. Over half 56% of the Canadian respondents of the survey affirm that over 30% of their projects are currently green and were expecting that more than 60% of construction would be green by 2017, signifying an increase in the green market which can generate strong opportunities for firms to harvest capital from this shift. Performance monitoring reveals that the overall level of green involvement in Canada is currently lower than those in the United States, but the degree of growth in the green involvement anticipated for the next three years is much higher than the one anticipated by the US (United States) firms. In addition, the Canadian level of green building activity is a bit higher than the global level which was reported in a 2012 study issued by the world Green Building trends SmartMarket report. Based on the survey, the trigger for green building in Canada is mainly the feeling of doing what is right as 24% of respondents reported followed by a lower 18% stating that client demand is their main trigger, which reflects unique market influence. The latter respondents also demonstrate the importance of client's demand as an important business factor that drives the market. Moreover 60% reported that green buildings' ability to promote better health and well-being helped influence their investment in green. Some of the major benefits of green buildings are decrease in energy consumption (reported by 82% of building

owners/developers) and decrease in water consumption (60% of building owners/developers). Moreover, the Canadian respondents found that their green renovation contributed to increased building values with a median of 4%. The McGraw-Hill construction 2013 World Green Building trends calculate a 9% decrease in operating costs over one year, and 17% decrease for over five years in Canada compared to 8% and 15% globally (2012 estimates). Green construction material can also be applied for both residential and non-residential purposes (CGBC, 2014). On the other hand, the building industry in Canada, as any other ones around the world, faces many challenges. Some of those challenges are related to the fast changes in economic trends in the world, competition, and new technologies, while others are of internal nature that are almost the same in different Canada's territories and provinces. In a study commissioned by CMHC (Canada Mortgage and Housing Corporation) and the CHBA (Canadian Home Builders' Association), interviews were made to building materials company representatives to provide an insight into factors influencing Canada's building materials industry, and the challenges and problems it faces. These problems and challenges mostly inflict negative effects on the whole industry and can be summarized as follows:

1. Increased competition with local and international companies;
2. Costs of labor and materials are higher in Canada than when compared with other manufacturers, especially US manufacturers;
3. Higher taxes and mandatory costs imposed on both manufacturers and manpower, such as payroll taxes, employment insurance, income taxes, provincial payroll taxes and corporate taxes;
4. Exchange rate of the Canadian Dollar against other currencies, mainly the US Dollar. However, the exchange rate may act positively when it drops down;
5. The strict regulations exerted by the Canadian National Code and the other regulatory bodies, and the time it takes the appointed regulatory bodies to validate and approve new products and technologies;
6. The need to invest more than before in research and development, to accommodate for the increased demands for quality, safety and environment and to withstand the increased competition in material manufacturing costs, which is significantly more vital for SMEs than large companies, to be able to compromise with other advantages larger manufacturers have, such as raw material costs and financial capabilities;
7. The need to increase the rate of export sales and finding additional markets abroad. Taking advantage of export opportunities will help companies to stay on the competitiveness edge,

incurring more profits and standing solid in the face of international markets. More efforts are expected from the government to play a role in promoting the industry;

8. Lack of consumer awareness regarding quality to price tradeoff when choosing building materials. Mainly, the consumer and consequently the constructors tend to choose low-cost material on the expense of durability and safety measures offered by other superior higher-cost components, as many homeowners are either unaware of the different quality among products or are likewise driven by considerations of cost. According to the majority of the companies, there is a need to educate builders, renovators and homeowners about the long-term costs of using such inferior products. To address this issue and overcome the problem, additional marketing efforts are made to elevate the level of awareness by cooperating with builders, and labeling products with quality details such as energy rating;
9. Shortage of skilled workers affecting the quality of construction and the level of trade personnel, which affect the demands on local products. Building material manufactures in Canada are always in the need of investing more in the training field, especially on new products, to keep the competition going on with other local and international enterprises (CMHC, 2007).

When it comes to skill development, the OECD in partnership with LEED (Local Economic and Employment Development), an OECD Program on Local Economic and Employment Development, has performed an analysis study for Canadian SMEs across Montreal and Winnipeg to help further identify SMEs' skills-related challenges to be dealt with by governments, businesses, education and training institutions, workers, community groups and policy experts. After policy themes and recommendations would be provided. The shortage in skills experience facing SMEs, which is due to global competition for skilled labor, aging of the population, and the weakened growth of the labor force, was emphasized in 2009 by the OECD that launched the "leveraging training and skills development in SMEs" through hosting two conferences. The first dealing with challenges SME face in providing training and skills development, whereas the second focusing on employer-sponsored training and competitiveness. During both, the participants made it clear that one of the main challenges facing SMEs is providing training and skills development from both the employer and employee perspective. The study performed, and workshops hosted lead to issuing multiple recommendations tackling SMEs' issues.

The first policy issue for increasing skills development depends on searching within the internal requirements of the firm enabling it to maintain its position in the market. The inter-Provincial study conducted in Montreal and Winnipeg revealed new information regarding the general situation of these enterprises that require change and innovation that would enable their position as competitors through

increasing their productivity. Yet although 7 out of 10 firms (based on OECD indicators) had at least one change within the previous year with 4 being considered as highly innovative firms, without external support and sharing expertise mechanisms. Small businesses in particular would face difficulties meeting such challenges. The recommendation here was to "develop alternative ways of skills development by fostering public-private partnerships to design and support knowledge-sharing mechanisms where small and medium enterprises can discuss their innovation and the way they approach challenges and operations for their products and services (OECD, 2012) because sharing knowledge is essentially is an interactive activity in this case, as it is novel and capable on its own to enhance the firm's productivity as well as develop problem solving-skills.

The second recommendation was involving employees in the training process, from A to Z all the way throughout the different phases in parallel with extra relevant activities.

Thirdly, "Enterprises should invest in employees at all levels in order to meet organizational challenges" (OECD, 2012b). This includes introducing new techniques and modes of production throughout the firm, for both the upper level of qualified staff and the less qualified employees, as it is noticed that the less qualified employees require higher opportunities to enhance their skills enabling them to fulfill the ongoing challenges changes.

Fourth, group-based mechanisms should be encouraged to make sure there is continuous skills development within the firm, because due to their small size, SMEs do not have enough internal resources to undertake skills development on their own, as it is obvious in the case of small enterprises, where external support is a necessity to assess local needs and tap resources, allowing for integrated training with their requirements.

The fifth recommendation is to encourage innovation and exporting activities as a strategy for skills development.

Sixth is that skill development activities need to be grounded in prior local needs assessments, and finally, governments should increase SMEs' awareness of available training support, as these firms are not always aware of the training programs and initiatives available, so facilitating ways for SMEs to access the information they need to enable their development and hence enhance their participation in existing initiatives (OECD, 2012b).

As for lowering taxes, the government has been trying to ensure a competitive business environment lately via lowering taxes as it has been proven to bring direct benefits to Canadian businesses while better promoting greater investment in the Canadian economy. Doing so, the government has given

companies the ability to re-invest by lowering business taxes, allowing them to grow and become more competitive in the global economy. These actions are said to have an effect on generating businesses that would save 14.7 billion dollars in just one year. Moreover, the scientific research and experimental development program provides about 3 billion dollars in tax incentives to over 20,000 claimants. Manufacturers that take advantage of these tax incentives can leverage the support they receive to allow for greater investment from their partners in the private sector. Actions in cutting taxes across Canada include:

1. Lowering corporate income tax rate from 22 to 15%;
2. Expanding the ACCA (Accelerated Capital Cost Allowance) for businesses in the manufacturing industry that want to purchase new equipment. This incentive will support around 30,000 businesses and has received the support of the CME (Canadian Manufacturers and Exporters);
3. Moreover, the Canadian government has worked on eliminating more than 1800 tariffs on a range of products generating more than 450 million dollars in yearly tariff relief to Canadian manufacturers;
4. Removing the federal capital tax. As a result, total business tax costs in Canada are the lowest in the G7 – reported by KPMG in 2014 – (46% lower than total business tax in the United States) which signifies that Canadian manufacturers now have the resources that allows for their investment nationally; generating more jobs to grow the Canadian economy. In addition to Canada being the leader of the G7 with the lowest overall tax rate on a new manufacturing investment, Canada also lead the G7 with the overall tax rates on new business investment (9.1% and 17.5% respectively);
5. Another action plan that was applied in 2015 includes reducing business tax costs from 11% to 9% over 4 years. That was in parallel with an official order that was issued to the six regional economic development agencies to support small and medium sized manufacturers;
6. Lastly, the Canadian government is providing a new accelerated capital cost allowance for eligible machinery and equipment required after 2015 and before 2026, and it has been calculated that the amount of federal corporate income tax rate by small business earning 500,000 dollars or less will be 46% slower in 2019, compared to 2006.

Due to foreign markets' crucial role in Canada's manufacturing sector, which accounts for 61% of Canada's total product exports, the Canadian government is also opening new markets for Canadian

exports. As the world is getting more connected via trade and technology, the Canadian government is also ensuring that manufacturers would have the opportunity to grow and expand. This is evident as Canada had free trade agreements with five countries only in 2006 (including Chile, Mexico, and the United States), but as a result of the government trade agenda, open trade agreements increased from being with 5 countries at 2006 to 44 countries by 2015 (including Portugal, Austria, Belgium, Bulgaria, Columbia, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Czech, Hungary, Iceland, Ireland, Italy, Jordan, Lithuania, Luxembourg, Malta, Netherlands, Norway, Panama, Peru, Poland, Romania, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Ukraine, and the United Kingdom). Among the countries that act as free trade markets for Canadian exports, the United States tops the list with 237.75 billion dollars in manufacturing exports followed by China (10.28 billion), Japan (5.08 billion), the United Kingdom (4.32 billion) and lastly Mexico (3.97 billion), with two major trades being the Canada-Korea free trade agreement as Canada's first in Asia and the Canada-European Union CETA (Comprehensive Economic and Trade Agreement). As a result of the former, Canadian manufacturers can benefit from the access to more than 558 million people in countries with 19.9 trillion dollars in combined GDP. As for CETA, which represents 500 million people with annual economic activity of about 18 trillion dollars, it comes with economic benefits equivalent to about 80,000 new jobs and is expected to boost the Canadian economy by 12 million dollars annually and an increase in bilateral trade by 20%. Trade agreements actions have also been taken to help lower the costs for Canadian manufacturers along their route to expand their global markets. The 2015 economic support plan commits to:

- 42 million dollars over 5 years to expand the Canadian trade commissioner service that would assist in advancing Canadian commercial interest;
- 50 million dollars as direct financial support for SMEs to help them develop new export opportunities.

EDC (Export Development Canada) also assists small manufacturers through helping them export to new markets or increase their export within the existing market. In 2014, the EDC has assisted more than 60,000 SMEs, ultimately helping generate new jobs for Canadians.

As for the shortage in skilled workforce, the government is also working on promoting skills training because today's manufacturing jobs are different than those of the past, requiring workers to be highly skilled in their fields in order for manufacturers to continue producing jobs for economic growth. The

Canadian government has been taking steps to enhance skills training for equipping Canadians with the skills needed to succeed. This includes:

1. Canada job grant which is an employer-driven approach that provides up to 15,000 dollars in training costs to help employees gain the skills they need for today's job market. Upon implementation of this job grant, 130,000 Canadians are expected to access training annually to improve their skills for in-demand jobs;

2. Targeted actions have been taken, such as introducing a new support program where applicants train as apprentices for provincial and territorial partners;

3. The government also committed to a number of important action plans as part of the 2015 initiatives including enabling businesses to work with post-secondary institutions to better align curricula with employer needs, by providing this initiative with 65 million dollars and 56.4 million dollars as an investment for over 4 years, to support the next generation of industry leaders, by investing the money in graduate-level industrial internships (Government of Canada, 2015).

3. RESEARCH METHODOLOGY

The below chapter includes two main sections, the sampling section that explains the importance and nature of the research's selection, and the process of collecting data.

3.1. The Sample

In this section, an essential focus will be given to explain the importance, technique and effect of sampling phase in this study. The sample plays a vital role in determining the reliability of the participants and how their contribution will help draw a consistent pattern and a dynamic model.

3.1.1.Importance of sample selection

There are a number of things to think about when selecting a sample for research. First and foremost, the sample has to be applicable to the research question. Researchers should always strive to select the most unbiased samples. Depending on the type of research and the approach taken to gather data, there are ways of mitigating bias and the level of applicability of the data.

The two main forms of bias that occur during the sampling process are the non-response/participation bias and the coverage/under-coverage bias. Non-response bias occurs when the individuals who choose not to respond to your request to use them as a sample are systematically different than those who do respond. It can be difficult to avoid this sampling bias without making participation mandatory, as is seen in some government surveys that are administered. Coverage bias occurs when the sampling frame (or the portion of the target population you are sampling from) is systematically different from the population and therefore some groups of people may not be adequately represented in any data collected. Table 1: Types of Bias lists additional important biases to be wary of throughout the research process.

Table 5: Types of bias

Bias type	Description
Non-response/ Participation bias	The people who chose not to respond are systematically different than those who did (may affect research).
Response bias	People choose not to be truthful when answering questions.
Coverage/Under coverage bias	The sampling frame is systematically different from the population and therefore some groups may not have the same chance of being chosen as samples as other groups.
Culture bias	The explanations given by the researcher are through a specific cultural lens which inherently skew the data.
Confirmation bias	The researcher uses the study to confirm a belief that he has.
Non-participation bias	The structure of study/dissemination of a survey means that some groups in the population will be systematically unable to access the survey or be a part of the study.

When it comes to mitigating biases, the best way to do so is through a form of sample selection called simple random sampling. Simple random sampling is when each individual sample as well as each combination of samples has an equal chance of being selected from the population (Veaux, Velleman, & Bock, 2012). Any known differences in a heterogeneous population that may result in a bias of the final data can be dealt with by using stratified sampling prior to performing a simple random sampling. Stratified sampling divides the population into known strata, or groups, and simple random sampling would be performed within each group, respectively, so that a representative number of each group would be included in the sample (Veaux et al., 2012). There are additional methods of sampling that can be useful in other situations, however the two mentioned above will prove most useful for this particular research.

The population of interest is manufacturing businesses in the building works and construction services. There are a few known strata that could be used. The chosen companies to sample could be divided into strata based on the type of construction/building material they manufacture. However, this may prove difficult since many companies will manufacture a variety of materials which makes clear strata difficult to distinguish. The other, and potentially favorable option would be to divide the sample frame into strata based on their size. There would be three divisions – small, medium, and large companies.

The size of the companies would be based on the Canadian divisions set out by Statistics Canada, as can be seen in Table 2: Division of Company Sizes (Leung, Rispoli, & Gibson, 2011).

Table 6: Division used for company sizes

Company size	Number of employees
Small	1 to 99
Medium	100 to 499
Large	500 or more

The potential for chosen companies to simply not respond to the invitation, to back out last minute, or to provide only some of the required answers means that there will always be an element of bias within the research. That being said, it is assumed that the depth of the information gathered will be of greater insight than if a larger number of organizations were contacted to do short surveys. Due to time and access restrictions, it is unrealistic for a large number of companies to be contacted and interviewed and therefore a typical simple random sample method of selecting companies may not be realistic. Instead, a number of helpful criteria will be set in place to narrow down the field of search and each chosen company must comply with all of the criteria. In this way, only those organizations perceived to have the most value-add to the research will be contacted. Presuming some organizations chosen may not respond to the survey, others have been put on a backup list in order to maintain the integrity of the sample frame.

An appropriate sample is crucial to any research project because without a representative sample any information gathered from the data will not be representative of the population the research is targeting. The knowledge gained may then be incorrect for the population. Oftentimes, when improper samples are taken, the data may still prove useful. However, at times the data is too polluted to be reliable to anybody. To avoid this, it is of the utmost importance to choose samples carefully.

3.1.2.Sample selection criteria

As has been stated previously, it will be important to select a sample that is as representative of the larger industry as possible so that a variety of viewpoints can be captured in the research conducted. The target group is made up of companies which work in construction, with a focus on suppliers, specifically SMEs. This focus is still a relatively broad group, crossing a variety of industries. As such, the chosen companies should reflect this and represent a number of different supplies that go into the

construction of buildings as well as represent a variety of different sized organizations. With regards to simple random sampling, this may prove more difficult for this particular research. A select number of organizations will be contacted, and interviews will be arranged with a project manager in the company.

As the research is targeted towards project, portfolio and innovation management, interviewing a project manager makes the most sense, as opposed to a lower-level employee or the owner of an entire company. Although owners, co-owners and partners are not completely excluded from the sample, the study will try to contact whomever has a direct contact with managing the projects and dealing with the team members. It will therefore be important to make sure that chosen companies have enough projects and at least one project manager in charge of the projects the company undertakes. Interviews were planned to be conducted taking roughly 30 minutes of a project managers' time, as well as additional time for the researcher to code and interpret all of the data gathered. Given the time constraint that faces the project, it could be difficult to contact and interview a large number of companies and so it was crucial to choose sample organizations with care. Some companies may choose not to reply or not to participate in the research which is another constraint that needed to be faced by the researcher.

A minimum number of six projects per organization was chosen as a standard to ensure that every company - and the project managers to be interviewed – have undertaken enough projects to have sufficient experience. By creating this standard, the researcher can assume that the input given for the research by each project manager is based on experience and not simply guesswork. Six is a project number that is good enough to show that companies and project managers have ample experience while still being attainable for newer organizations that may not have engaged in a large number of projects.

To make the pool of potential companies smaller, there is a geographic limit on the location of the companies' physical office(s) and their operations. Although companies who provide services throughout Canada or even internationally may be contacted, they must have an office in Ontario (Canada) or in the surrounding area. Should it be necessary, a company with an office in the GTA (Greater Toronto Area), Ontario (Canada) may also be interviewed. This is important as it not only narrows down the pool of companies which may be contacted to a more manageable number, but it also ensures that the research can be conducted in a standardized environment as possible.

As the researcher will have the ability to travel to the offices of the companies to conduct interviews, there is less of a chance of having to perform some interviews over the phone or through Skype calls,

which can skew the data gathered between the different companies. As biases are a problem with research, this standardization of the implementation of the interviews will help to eliminate as much bias as possible, particularly between the samples chosen for interviews.

All of these different criteria have been organized into a checklist table which is located below in Table 3: Sample Criteria. Each of the criteria will be applied to the companies selected to ensure that those chosen to suit the research project.

Table 7: Sample criteria

Criterion name	**Specifications**
Field selected	Variety of fields, all with inputs to the construction industry.
Organization size	Mainly target SMEs (see appropriate sizes in Table 1), with an attempt to vary the organization size.
Geographic limit	Ontario (Canada) and surrounding area. Potential to branch into the Greater Toronto Area (GTA), Ontario (Canada).
Project manager	Must have a project manager in charge of organizing and running the project and portfolios.
Project number	Company and project manager being interviewed should have been involved in at least six major projects prior to being interviewed.

3.1.3.Sample size and type

To generalize a proven hypothesis, it should be tested on a certain sample, however the size of this sample will definitely vary in different cases. This affects the success or failure of a research to draw precise conclusions. Sometimes, a small sample may not reach a conclusive level. We might think that having a big sample size will give us a more accurate study with less error margin and less bias, yet, at some points it is a waste of resources. Therefore, a sample size is crucial to any research done. Broadly, informants are selected because of their personal experience or knowledge of the topic under study (Cleary, Horsfall, & Hayter, 2014). The adequacy of participant numbers involves thoughtful decision-making; too few may risk adequate depth and breadth, but too many may produce superficial or unwieldy volumes of data (Cleary et al., 2014; Sandelowski, 2000).

In order to create a sample size, we should set our target and classify its components - how to improve SMEs in Canadian building material industry by integrating innovative project portfolio management - thus knowing the challenges that face those SMEs within this sector.

Geographically, the companies selected are in Ontario Canada region, to provide a stable ambiance since conditions vary from one location to another.

As this research is based on questionnaires that are able to be discussed and get more complex to open ends, the more companies are involved, the harder the situation will be to break down data and analyze it. Also, it may lead to big variance in data which can't lead to a constructive conclusion. Participants have the opportunity to respond more elaborately and in greater detail than is typically the case with quantitative methods (Mack, Woodsong, Macqueen, Guest, & Namey, 2011). In turn, researchers have the opportunity to respond immediately to what participants say by tailoring subsequent questions to information the participant has provided (Mack et al., 2011). Therefore, adopting a small sample will facilitate a detailed framework for those SMEs with varying differences.

While working on this sample, it has some advantages:

- The short time-length for the study and reaching out to all;
- Less human resources needed to cover the sample and fitting within the budget.

Constructing this sample on construction and building material's SMEs, there is a set criteria which will guide the study's track. It considers supplying firms which have a minimum of 6 projects (as the research focuses on project portfolio management) beside other factors. Doing so will narrow down the sample size to build a framework that will help those SMEs. They must have this minimum number of projects to be discussed, analyzed and provide an understanding to the gaps and challenges facing those SMEs.

Those selected companies based on this criteria probably have visions/studies about new technologies and materials following sustainability as the world is moving in this direction more and more. This facilitates more our small sample to reach the target.

Qualitative sampling methods:

What makes us choose a qualitative sampling is that we're trying to improve the quality of management integration in SMEs. More recently, it has been recognized that basic quantitative indicators of business performance and measures of client satisfaction ("happy sheets") fail to generate sufficient insights into client needs or the effectiveness of client support (Sparrow, 1999). There is a need to get closer to the world of business owner-managers, to identify how they see situations and how they might best be facilitated to develop their practices (Sparrow, 1999). We need to emerge to a more sophisticated sampling which will help in minimizing the risks facing those enterprises.

As technology and regulations developed in the past years, they facilitated small firms' entrance to the market in building materials sector, however this is a double side sword because at a certain point it is a limitation itself to those businesses.

While using qualitative analysis, there's an in-depth review and detailed observation for questions to understand the gap between different managements and the effect of adding innovation management to their frameworks, thus building a final comprehensive analysis. The challenge of this lies in the ability to get the clearest transparent answers, while the interviewed managers might have ambiguous answers. Via qualitative business research, a critical and reflexive view of the business world and its processes can be formed (Eriksson & Kovalainen, 2008). It will also help understand the acute risks accurately and structure them within a new framework.

On another hand, away from the traditional materials, it is crucial to understand the practices and problems facing those companies to accompany high tech. in this industry, as mentioned earlier, globalization is leading, turning our lifestyles upside down. Sustainability-ecofriendly technologies in the construction is a trend that is in high demand and is tending to upgrade from a niche to a mainstream (being part of building regulations in the future).

To avoid bias, as it produces wrong conclusions, sampling is done on two levels, stratified sampling, which divides Ontario, Canada into groups, creating strata in the firms' population which supports the small sample we're working on and ensures a well representation for each group. It is a proportionate stratification that creates an equal chance for all groups to be represented in simple random sampling. The simple random sampling involves less judgement, selecting several firms randomly for the research to be done. It is explained briefly in figure 13. Adopting those two methods based on set criteria will provide a saturated information level.

It is important to note that even though qualitative research focuses on the individual, subjectivity or individuality is not the only goal of study (Luborsky & Rubinstein, 1995). Qualitative research can focus on the macro level (Luborsky & Rubinstein, 1995).

Qualitative research still has to defend itself in terms of scientific criteria of samples and reliability of analysis, but it is the very clear locus of the findings in the phenomenological world of participants that gives qualitative research its credence (Sparrow, 1999).

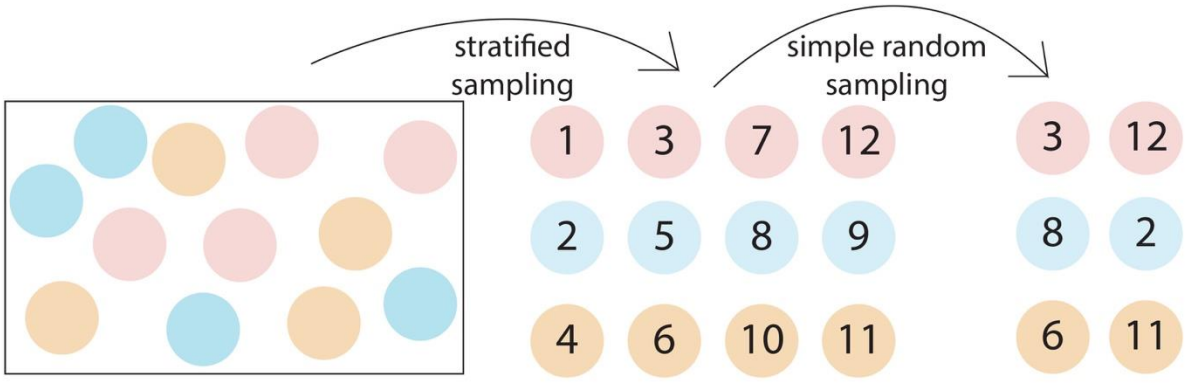

Figure 13: Stratification and simple random sampling
(Meng, 2013)

3.1.4.The selection

The selection process has been performed over several phases in order to ensure a smooth and accurate conduct of the different techniques that are meant to be used in this phase. Several limitations have been found in the way, but different methods were applied to work around, while maintaining transparency, to have good results at the end of the day.

In order to ensure convenience, collection of intensive and purified data, well-performance while having limited resources, especially time resource, the sampling phase has to be designed in a way that narrows down the target industry and navigates in it in a smooth, yet accurate way. This shall be revealed in a better rapport for results within the research.

Since the target industry is construction and building materials, which is a wide and huge industry in Canada, there is no high chance to collect data for a big sample, as mentioned, because the cost would be quite high, and the time required would be quite long. It has been decided to split the target into different layers and strata. Dividing it into several groups will support the research strategy, in what a "case study" is, in the sense that the research will have at least one case that belongs to each stratum. This way, the end results should reveal a mosaic picture that relates many groups to each other in one picture.

Toronto was chosen as a main layer that represent the location of the target industry. Among the cities inside Toronto, there has been a serious attempt to select a case in each of the main business cities like Mississauga, York region, Vaughn and Downtown. This comes as a first signal to how should the approach be in terms of choosing layers and selecting cases and samples.

Another layer that comes in the same context is the specialty of the "subject cases" or companies that were selected. It will be shown that those selected cases are specialized in various fields such as wood works, metal fabrication, painting, etc. Such variety would enrich the assembly of the research results in more than a way. In certain sense, the research will have diversified cases that can rely on to support the main approach that will be followed to design Innoframe. In another sense, the research will be able to link, compare or relate different matters from different layers, groups and cases that were chosen as samples. A third layer is the size. The size as well was something taken into consideration to assess the flexibility and the ability of maneuvering within small and medium sized companies.

Among all these layers, several strata (groups) have been created to be able to choose from them in a simple random sampling method that was based on accessibility and easiness of reach.

The description of Companies to Interview, gives a quick overview of the companies that have been chosen as samples for the research. Table 7 only outlines the company name, their contribution to construction of buildings, and where their local office is located. Each company will be compared against all of the criteria in Table 8: Company Profiles. Table 7 will also include an ordered number to show which five companies are the top five to contact with the others being back-ups in case some of the original five decide not to participate in the research. As a matter of fact, not all of the information, in terms of population numbers, was available to us or provided to us. This data came from the government and as such we did not have access to all of it. Companies were initially chosen to ensure they had a variety of backgrounds and therefore perspectives. This meant reaching out to companies with different specialties (wood, metal, painting etc.), and from a variety of different cities. Of course, the research required each company to agree to participate. As such, not every company initially identified as a potential participant was a part of the research. Furthermore, participants were required to provide a case as to how they fit the criteria. If a company did not meet all of the criteria and provide a good case, they were not accepted as a participant.

Table 8: Description of companies to interview

Company	Field	Location
1	Metals fabrication and installation	North York, Ontario (Canada)
2	Construction and building materials preparation	Ottawa, Ontario (Canada)
3	Construction and renovation	North York, Ontario (Canada)
4	Construction	Toronto, Ontario, (Canada)
5	Construction and renovations	Mississauga, Ontario (Canada)
6	Paintings / Preparation and installation	Mississauga, Ontario (Canada)
7	Construction	Toronto, Ontario (Canada)

Table 9: Company profiles

Company	Profile
1	A Small-sized company with a team ranging between ten and twenty personnel working to offer the Canadian market top metal-related projects. Their projects encompass fabrication, designing, installation and other kinds of work.
2	A small-sized renovation and contracting company located in Ottawa and running projects in all of Ontario including greater Toronto area. A team of 10 people led by an experienced man work in two main domains, making some building materials and running renovation projects.
3	A medium sized organization that is part of a widespread chain having around 5 branches in Canada. The engineering department is quite busy running several construction, renovation and other projects. They have a special team of over 30 technical, manager and other personnel working in this area.
4	A medium-sized construction company that brings together twenty plus years of construction experience. A privately owned and operated company that prides itself on an unshakeable reputation in the industry as reliable, dependable and, honest. It has multiple small, medium and big projects all over greater Toronto area.
5	A recognized leader in the industry. It provides general contracting, design build, construction management and preconstruction services to all sectors of the business world.
6	Construction and renovation company specializing in the painting line with strong capabilities to handle big and complexed projects within Ontario province. More than 6 years of services in this domain have enabled this company to enter joint venture projects with huge construction companies in the market.
7	A construction focus company with broad portfolio of projects and contracting modes including general contracting, design-build, bid-build, and public-private ventures.

Given the merits of each organization shown above in Table 8, it is apparent that the organizations have been selected with the criteria and the research aim in mind. The businesses have been chosen because they supply a variety of different input materials for construction. Their size and location have also been taken into account. All businesses were contacted, having one as a buffer in case one organization chooses not to engage in the research.

For this study, the companies were divided into strata with those strata being the various cities in the Greater Toronto Area (GTA). All of the companies chosen had operations in the GTA. The only slightly different company was the one with headquarters located in Ottawa, but this company was also working within the GTA. A total number of seven companies was chosen because this allowed the researchers to access a wider range of perspectives than if a smaller number had participated. While having more than seven companies would have been more ideal, time and resource restraints meant that fewer companies could be interviewed in order to receive the in-depth responses necessary.

3.2. Collecting data

The process of collecting data takes several forms and uses variety of methods. In order to gather the needed information and measure it on the basis of this research interests, there should be an established systematic process along with the right tools to be able to figure out accurate and useful results. Below is a demonstration of these methods, tools and other related matters.

3.2.1.Overview

Data collection is the process of obtaining and measuring relevant information on given variables pertaining to a research or study of interest (Ackroyd & Hughes, 1992). This means that data is the raw facts or ideas that are gathered to be used in analyzing information. Data collection is conducted in a designated fashion that comes from an established system. Data collection enables the study to use relevant information to test hypotheses, answer research questions and draw conclusive analysis on a subject matter. Data collection usually forms part of all types of research conducted across all the varying disciplines of sociology, sciences, businesses and humanities. In every discipline, there are unique methods that are employed during the data collection process. However, one common thing that cuts across all disciplines is the honesty and accuracy that is required during data collection in order to provide the correct conclusive reports (Ackroyd & Hughes, 1992).

The data that is collected has evolved over time with the earliest forms of data being tick and tally marks. These forms of data were collected to help in record keeping especially in checking and

recording the inventories of food stocks in the civilizations of historic times. With inventions, the abacus came up to help with such records. There was more need for data collection over time and thus, more forms of data were invented as well as the tools and methods of collecting them. As the society evolved, more needs for data came up, for example, the census that started taking place in the 1800s. The census is undeniably the largest source of data and thus, there was need for more efficient data collection methods and analysis. This need led to the invention of the Hollerith Tabulating Machine by Herman Holerinth. The machine was used to tabulate data and ease the process of data analysis (Kistermann, 1991). Later in the 1900s, the invention of the computer brought more efficiency to data collection and analysis. As much as data collection became more efficient, the problem of data storage emerged. However, with technology, storage devices like memory chips were invented and made data collection more efficient. Today, data collection has become more sophisticated with new inventions in technology and thus, research has become not only popular, but also efficient (Kistermann, 1991).

- Importance of data collection for this research

Information is the most important asset in institutions and research because they can process this data and use it to make meaningful decisions. Many organizations take data collection seriously because of the many benefits that they obtain from the process and thus, have set up specialized data collection processes for their organizations. Data collection involves obtaining and measuring information before processing it for the purpose of answering the questions of research. Data is often collected at the initial stages of research. There are various techniques involved in data collection and the choice of the methods to be used are at the discretion of the research body (Formanek, 2012).

Data collection helps to save time for an organization. Hunting for data by staff members requires a lot of time which they could have spent on doing some other meaningful work in the company. More often than not, the data collected at such times ends up being useless thereby making the process a waste of valuable time by the employees. Thus, it is important for organizations to have specialized data collection processes that would help to obtain and display data that is collected from all relevant areas to an organization. This way, it becomes easy to make analysis and interpretations efficiently, thereby saving a lot of time for the organization.

At times, data that is collected brings attention to an existing problem that people may have not been aware of. When data is collected, the relevant authorities are able to validate the existence and intensity of a problem and thus, offer the necessary solutions to the problem (Hair, Celsi, Money, Samouel, &

Page, 2015). Sometimes, during the data collection process is when people realize the loopholes that exist in their research and from that, they are able to come up with solutions.

Data collection also helps in drawing expectations and setting up targets for a certain course of action. When data is collected, the affected persons are able to measure their position on the subject matter, for example, in research, it helps to determine the baseline, conduct benchmarks with similar projects and afterwards, set up targets that can be used in projects. That way, researchers are able to determine how far they are in their projects and thus establish whether they are close to achieving their target or not (Hair et al., 2015).

Another important benefit of data collection is that it helps in conducting the cost benefit analysis. Research is mostly conducted to determine the cause of a problem, its effects and thereafter, provide solutions. The problem may turn out to be either costly in its existence or in implementing its solutions. The data collected in any research can help determine whether the solutions to the existing problem will be cheaper or costlier than its consequences. Thus, the decisions to either continue with the research project or not relies on the cost benefit analysis that will be conducted after data collection. Furthermore, it is through data collection that organizations make informed decisions from the information that they have obtained (Hair et al., 2015).

In situations that organizations fail to collect data, they tend to use old information in making their decisions and that would be irrelevant to the organization. With the right data, organizations are able to get updated on the relevant trends and offer solutions to emerging problems pertaining to the organization (Hair et al., 2015).

- Impact of different quality data on the end results

As mentioned earlier, data is defined as the collection of information in the form of numbers, measurements, words and observations which are processed and analyzed to produce conclusive results that can be interpreted and used in the future. The data collected in any research or study is the determinant of the outcome of the research. Data can either be good or bad, depending on the objective of the research or study. Sometimes data collected can be rendered useless or inefficient when it fails to meet the objectives of the research.

To know the status of data that is to be collected or has been collected, it is important to conduct both quality assurance and quality control practices. Quality assurance practices are activities conducted before collecting data while quality control practices are those that are carried out during data collection and afterwards. Quality assurance is supposed to ensure that the process of data collection is

transparent such that integrity of the data is maintained throughout the study. The purpose of quality assurance is prevention of the factors that may compromise the quality and integrity of the data. On the other hand, quality control includes activities such as monitoring the data that has been collected in order to detect any errors and devise actions to counter the errors (Knatterud et al., 1998). The quality of data collected is usually reflected on the outcome of the research that was undertaken.

- How will good data impact the research results?

Good data is quality data and it is usually collected using the accepted or stipulated methods relevant to the research and is devoid of errors. Quality data has numerous effects on the results of the research, and they include:

1. Quality data is essential in identifying and verifying problems and perceptions pertaining to the study. Problems are present in the society, but without facts, then it cannot be proven to be existing. The data that is usually collected during research is analyzed to obtain results. The outcome of the results can then be used to prove the existence of the issues and from that, the societal views on the problem can be captured. However, if the opposite happened, the research would obtain misleading results that would only create more problems (Pipino, Lee, Wang, & Yang, 2002);

2. Quality data can be used to address issues in the society, identify and capitalize on the opportunities and measure the progress of the research. For example, on this research, through the data collected, the researchers were able to identify loopholes in innovative management for SMEs and thus, designed their research to help address the issue. It is also possible to analyze the milestones covered in a specific research. For example, most researches are used to prove a certain existing theory, like, prices of commodities in the market being influenced by the demand and supply of the goods and the customer preference. When quality data is collected in such a study, then the results of data analysis of the data collected should go in line with the theory. When that is not the case, then it implies that the data collected was not of good quality. Also, quality data can enable one to capitalize on opportunities, for example, one is able to justify requests for more funds, one is able to improve on their innovative skills and improve on their productivity and also it can help improve the stakeholders' view on the project as a viable one (Pipino et al., 2002);

3. Quality data can enable a researcher to gain trust on the project while at the same time enable him to develop meaningful and effective consultations which in the long run enables one to obtain support from the main decision makers. Research is usually an unsure venture that may turn out beneficial or useless in the long run based on the outcome. When major stakeholders see the quality of data being

used in the research, they are able to determine whether it will give good or bad results and thus, can either reject the study or encourage it (Pipino et al., 2002);

4. Quality data is necessary to avoid exposure to any illegalities pertaining to the law. Studies need to be conducted in accordance to the law, especially when it comes to the variables used and the methods of data collection. More often than not, studies may be rejected for containing data that may infringe on the set laws of the country. For example, a research may be based on marijuana consumption, yet marijuana may not be legal in the said region. Although the data collected may be viable for the research, it may not go well with the country based on the restrictions they have set up concerning the subject matter. Therefore, it is necessary to check on the legal status of the subject matter before collecting data (Pipino et al., 2002).

- How can bad data affect the research results?

Bad data is not uncommon in research. Bad data is just low-quality data obtained from poor collection methods or errors that are committed during data collection. During the process of data collection, it is possible to commit errors such as misapplication of the data collection techniques, malicious manipulation of data, misunderstanding of the data computing errors. These errors may be done knowingly or unknowingly, but the end result is that poor quality data will be used for the specific study (Pipino et al., 2002). Bad data has detrimental effects on the outcomes of a study, and they include:

1. Exaggeration of the results. The outcome of the study may turn out unrealistic if poor quality data was used in the research. The results depend on the analysis of the data that was collected. With bad data, it is possible to come up with unexpected results that may cloud the viability of the research. Once the research is cancelled because of the exaggeration of results, then it means that the purpose of the study is undermined altogether (Pipino et al., 2002);

2. Wrong results. Most studies are usually expected to go in line with the theory. When the results obtained from the study go against the existing theory, it indicates that the results are wrong and could have originated from poor quality data (Pipino et al., 2002);

3. Poor quality data may make it hard to obtain results of a study. During data collection, the researcher may forget to record some data that is important in the analysis. Therefore, it means that no results can be obtained because of the missing data (Pipino et al., 2002);

4. Bad data may create results that bring conflict in the society. In a study that touches on sensitive matters to a society, it is important to collect the data with utmost care so as not to infringe on the

societal norms. When errors are committed in data collection, the results may turn out to go against the expectations of the society and the entire study may be rejected for being inappropriate (Pipino et al., 2002).

3.2.2.Types, tools and methods for data collection

As mentioned earlier, data collection is the process of obtaining information for the purpose of hypothesis testing in research. For data to be collected successfully, relevant methods must be put in place to do this depending on the variables of the research. Different types of data collection methods exist, and they are the primary and the secondary data collection techniques.

- Primary data collection techniques

These are the techniques involved in collecting fresh data that is new and specific to the particular research that is being carried out. These methods can be further categorized into two groups, the qualitative and the quantitative methods. Quantitative methods tend to answer the "what" question of the research and are usually conducted in a standardized method. Due to the nature of this research, this technique has not been used throughout the study. However, qualitative method was the main route for collecting the data. Contrary to quantitative techniques that involve numbers, qualitative methods include the feelings, opinions, emotions, words and colors relevant to the research question that cannot be quantified using numbers (Sandelowski, 2000). Qualitative methods tend to obtain a deeper understanding of the variables and their interactions with the subjects of the study. These qualitative methods of data collection include open-ended questionnaires, group discussion, interviews, role-playing, observations, case studies among many others (Sandelowski, 2000). Research is as good as the data that is used in it. Therefore, it is important to implement the right techniques in data collection and they will include:

One: Interviews

Interviews as a method of data collection are used to obtain data from a small selection from a sample concerning a wide range of topics. Interviews can either be structured or unstructured. Structured interviews are similar to questionnaires in that the questions are usually in a particular order requiring answers of a particular order too. Unstructured interviews are those that do not conform to any particular order or style and the answers required for these interviews may be varied depending on the subjects of the research. Interviews may be conducted face to face or over the telephone. Both the

methods involved in conducting interviews have both advantages and disadvantages (Gill, Stewart, Treasure, & Chadwick, 2017).

- Merits of face to face interviews

1. There is the possibility of asking detailed questions. The context of having a face to face confrontation with a person gives more room to further probe the interviewee. At times, the questions that were structured for the interview may not be detailed and the confrontation allows the interviewer to seek more details concerning the subject matter. Also, it allows the interviewee to seek clarification in the areas that have not been well understood or are unclear. This method would give accurate results (Gill et al., 2017);

2. Face to face interviews enable the research to be carried smoothly without problems like illiteracy of the participants. More often than not, before any interview is conducted, the interviewee has to be assessed in terms of the literacy levels to reduce the burden of errors that may arise from misinterpretation of the questions;

3. Face to face interviews enable the interviewer to get further details from the non-verbal cues displayed by the interviewee during the process. The non-verbal cues are able to show the emotions or feelings of the subject towards a particular matter and when this is noted, it can add more relevant information to the research. For example, the interviewee may agree with a certain idea, but the body language may not show agreement, and this may indicate other things like fear or uncertainty towards the subject matter (Gill et al., 2017);

4. The response rates of face to face interviews are very high and thus, saves a lot of time for the research. Since the interviews form a question and answer session, the interviewer is capable of obtaining the necessary data instantaneously (Gill et al., 2017).

- Demerits of face to face interviews

1. Such interviews are prone to bias from both the interviewer and the interviewee. At times, the interviewer may fail to ask all the questions that are stipulated in the research or the interviewee may fail to answer all the questions. Bias also comes from the fact that the interviewer may choose a respondent of their own liking since the selection is done at their discretion (Gill et al., 2017);

2. The whole process may be time consuming. There is need to train the interviewers on how to conduct the interviews and also, selecting the respondents may be time consuming. In addition to that,

the conversation may take longer than expected due to the clarifications and other irrelevant conversations that may come up during the process;

3. The face to face interviews may be unsuccessful when sensitive matters are touched, making the interviewee uncomfortable.

- Merits of Telephone Interviews

1. They are faster and cheaper than face to face interviews. Telephone interviews do not incur transportation and lunch costs that may be required by interviewers to go to the areas that they need to conduct the face to face interviews. The telephone interviews also tend to save a lot of time as they are conducted from anywhere and do not need setting up meetings that consume a lot of time;

2. The telephone interviews allow for clarification of questions and answers and the responses are usually instantaneous;

3. Telephone interviews can be recorded for further analysis during the research (Gill et al., 2017).

- Demerits of Telephone Interviews

1. Technical issues may pose a challenge to the interviews as they may distort the clarity of the response. In addition to that, the interviews may not be conducted in areas that have no network connectivity despite being the target for the research (Gill et al., 2017);

2. It is not possible to gauge the emotions or the feelings of the interviewees since it is not possible to observe the body language over the telephone;

3. Telephone interviews are subject to bias as the genuineness of both the interviewer and interviewee cannot be established. Interviews are valuable for research because they allow the participants to explore the particular subject matter in depth and establish conclusive analysis based on the data obtained (Gill et al., 2017).

Two: Observations

Direct observation as a method of data collection is the process of gathering data pertaining to the research through the use of vision to record the interactions with the subjects of focus. Observations focus on behavioral traits of the subjects while interacting with the phenomenon under study. Observations can be used alongside other methods like interviews by observing the verbal and non-verbal cues of the subjects during the research (M. Patton, 1990; M. Q. Patton, 2015). Direct observation as a technique of data collection has merits and demerits and they include:

- Merits of observations

1. More in-depth information can be obtained through observations and can be used to provide more unseen insights to the research. A lot of information can be derived from observing behavioral patterns in relation to the phenomena under study (M. Patton, 1990; M. Q. Patton, 2015);

2. During observations, it is easy to control the samples that the researcher needs. In short, the researcher chooses to only focus on the relevant parameters. This helps in saving time for the study;

3. There is no room for misinterpretation of responses due to manipulation as the behavioral patterns give all the answers.

- Demerits of observations

1. The results may be misleading as the sample under observation may act in a misleading manner as they are made aware that they are under study (M. Patton, 1990; M. Q. Patton, 2015). The behaviors of subjects may be manipulated and thus, give wrong results that may be detrimental to the study;

2. Observations can be time consuming especially when a comprehensive result is sought after by the researchers. To observe different behavioral patterns while interacting with the phenomena requires a great deal of time;

3. Observations may lead to data loss, especially when the observations are not recorded;

Direct observation is usually useful in obtaining contextual information required to make evaluations and conclusive reports on a research. Besides that, direct observation is a viable tool used to obtain information that the participants of a study may find difficult to disseminate verbally.

Three: Group Discussion

Group discussion are to gain further knowledge about the subject matter through sharing of ideas (Gill et al., 2017). These discussions provide an insight as to why the sample population acts in a certain way or even share their interactions with the phenomena under study. Group discussion also exhibit advantages and disadvantages.

- Merits of group discussion

1. They are able to help gain information on the beliefs and cultural insights of the society;

2. They are useful in exploring the complex issues through open discussions. In addition to that, the researchers are also able to gauge the sensitive issues particular to the sample group and thus, understand their behaviors and attitudes (Gill et al., 2017);

3. Through the discussions, the researchers can gain ideas for the next study by exploring the loopholes that are present in the sample population;

4. This method does not require the participants to be literate rather just have an understanding of the subject matter.

- Demerits of group discussion

1. Group discussions are not private and thus, may discourage participants who wish to maintain their anonymity during the study;

2. Deciding on the participation of the sample in these groups may bring up issues like gender disparities that may not go well with the target society;

3. In every group, there is the possibility of having few dominant speakers that may not necessarily reflect the views of the other members leading to bias in the results;

4. Generally, the method requires a lot of time to conduct and analyze the results afterwards (Gill et al., 2017).

Four: Questionnaires

This is the most common technique employed in data collection. Questionnaires are structured questions related to the research study and are printed and given out to the sample for feedback. Questionnaires can either be open-ended or closed questionnaires. Closed questionnaires are those that require only yes/no answers with no further explanations. On the other hand, open-ended questionnaires are those that require the respondent to give comprehensive answers to the questions (M. Patton, 1990; M. Q. Patton, 2015).

- Merits of Questionnaires

1. They give the researcher an opportunity to carefully structure the questions in a way that is relevant to the research;

2. The participants in the research are awarded time to give feedback at their own pace and convenience;

3. The questionnaires are able to give genuine feedback from the participants as most of the time, identification is unnecessary (M. Patton, 1990; M. Q. Patton, 2015).

- Demerits of Questionnaires

1. The responses might be quite low as the respondents may fail to return the questionnaires or refuse to answer the questions due to time constraints (M. Patton, 1990; M. Q. Patton, 2015);

2. Some of the feedback may be wrong as the respondents may choose to be dishonest in their responses;

3. Comprehensive data cannot be obtained because it is not easy to gauge behavioral cues from them;

4. The questions may not be answered correctly due to misinterpretation by the respondents (M. Patton, 1990; M. Q. Patton, 2015).

- Secondary Data Collection Techniques

Secondary data collection is a method of obtaining data from sources that have already conducted the primary data collection and have analyzed the data. Secondary data can also be either qualitative or quantitative. Qualitative data can be obtained from diaries, recorded interviews, journals, transcripts, newspapers among many others. Quantitative data can be obtained from statistics, financial statements and surveys among many others. Secondary data is readily available and thus cuts down the resources like time and money needed to obtain data. However, secondary data may not be specific to the researcher's needs and may require re-analysis to obtain the needed data (Johnston, 2014).

For this particular research, we are going to use group discussions, interviews and observations and questionnaire. The framework that is to be designed is supposed to help the SMEs in the areas of innovative management, project management and portfolio management. Clearly, there are loopholes in the organizations in the mentioned areas and thus, it means the problems are specific to the companies. Therefore, secondary methods may not be useful in this context. The data required in this type of research is qualitative data necessary in exploring the specificities in the research in relation to the organization. There is need for contextual data and thus, the qualitative methods of observations, interviews and group discussions are the most suitable for use.

The below table is designed as a summary for what have been mentioned above:

Table 10: Insights into chosen methods

Method	Importance
Interviews	Allowed researcher to ask in-depth questions to individuals without worry of anyone else influencing the response. Non-verbal cues also helped to further the information gleaned from the participants. High response rates to questions meaning a complete data-set was more likely to be achieved.
Surveys/Questionnaires	Questions can be targeted and structured so that only the pertinent information is gathered from the participants. Participants have time to think about the answers they give to researchers and often genuine feedback is common since identity is rarely necessary.
Group Discussions	Cultural and environmental insights on the workplace can be gained through viewing the interactions between the group of individuals. They are helpful for gathering information on complex issues through open discussion among the participants. Non-verbal cues can also help to increase the amount of knowledge gleaned from the interactions.
Observation	In-depth information could be collected through the viewing interactions as they would occur normally in a day-to-day setting. Easy to focus on the relevant parameters to the study. Behavioral and non-verbal cues add to the value of the study.

The table summarizes the benefits and importance to the study. It is easy to see that there are some obvious similarities between the four methods, but it is actually what makes them different from each other that makes them all beneficial methods to employ. Each one targets a different lens of the same population with interviews going in-depth and providing individual perspectives on a topic, group discussions providing a larger cultural view, surveys providing targets and genuine opinions of a small number of questions, and observations allowing the researcher to view interactions without interference or biased answers from participants. These together create a more holistic picture than if only one or a few of them had been employed in the study.

3.2.3.Obstacles, challenges and opportunities

Data collection is an important part in research. The data that is collected is used in analysis that is necessary to draw informed conclusions on the research. Data collection is subject to human manipulation that is prone to challenges and obstacles encountered along the way. These challenges may be natural or influenced artificially. Natural obstacles are those that are not within the control of humans but affect the research negatively. On the other hand, artificial obstacles are those that are created or induced by the participants of the research and at other times, other people not involved in the study like the government (Feng & Liu, 2011). The obstacles that are encountered during data collection may delay the study, be costlier or manipulate the results of the research. The challenges facing the research may be specific to the methods used or may in this particular research, the methods of data collection employed here are subject to possible obstacles and challenges like:

First: Choosing the appropriate methodology of data collection - As simple as it sounds, deciding on the appropriate methodology to be used in data collection might be complex. All the methods of data collection may seem applicable to this particular study but not all of them may be efficient. The methodologies available have both advantages and disadvantages and thus, the researchers may get confused over picking the right one. The wrong methods can lead to wrong data that may tamper with the results and thus, tamper with the overall viability of the research study. At times, the methods selected for the data collection of the research may not be the preference of the researcher. This leads to attitudes towards the research and the data collected may be rendered inefficient (Malterud, 2001).

This obstacle can be overcome by the following.

One: Before deciding on the methodology to employ during the study, it is important to analyze the resources that are available. Data collection methods depend on time available, the willingness of the researchers and funds that have been availed towards the project. It is important to gather the resources before deciding on the specific techniques that would be relevant to the research. It is not advisable to invest a lot of resources in a project without gauging the returns. Some projects may require a lot of financial resources, especially in data collection, yet the returns may not be worth it. Therefore, it is important to conduct a cost-benefit analysis before deciding on any data collection techniques;

Two: The most appropriate way of choosing the methodology to be employed in a research is simply not choosing anything. This means that personal preferences cannot be used in this process. Rather, the research question itself creates the need for particular techniques. For example, the topic

for this particular research requires qualitative methods in data collection like interviews, group discussions and direct observation;

Three: It is beneficial to benchmark with other researchers who have undertaken similar studies in the past. Benchmarking helps to give ideas of the best methodologies to use in this particular research. In addition to that, benchmarking helps the new researchers to establish loopholes in the methodologies used in the previous studies. This way, it is possible to avoid any errors that may have been committed in the earlier projects. Also, a pilot study may be useful in checking the viability of the methodologies that the study intends to use.

Second: Gathering the participants for the study (Malterud, 2001). The research needs the participation of both the researchers and the subjects for the study to be complete. The subjects are needed to provide the necessary data that will be analyzed to provide comprehensive results. In this particular study, the participants for the research are the SMEs, particularly their project managers and team members. The companies are needed to be evaluated on their utilization of innovative portfolios. Getting such information from companies may be quite difficult because information is considered a valuable asset to a company. Some companies may fear infiltration by competitors and thus may decline to disseminate information. Other companies may have restrictive policies against releasing sensitive information about the company to the public. Such things pose a challenge to data collection making it an efficient process. When data collection is inefficient, the research may fail to be completed rendering it useless. This challenge can be overcome by:

One: Getting the right identifications. More often than not, companies do not open up about their information to strangers. However, they might give out information to people from reputable institutions that they consider genuine. This helps to curb the fear of infiltration;

Two: Signing of contracts. Contracts are agreements used to protect the interests of the parties involved. The fear of infiltration may be overcome if the companies get into a contract with the researchers. The contract will provide guidelines on the amount of information to be passed from the company and also, the usage of the information (Malterud, 2001). This way, the company is able to protect any misuse of its information while the researchers will obtain the much-needed research for their study;

Three: Sometimes gathering the participants for a study may be difficult because they do not know or understand the importance of the study. To overcome this challenge, it is necessary to create awareness about the study to the target subjects.

Third: The challenge of staying focused on the course of study. A large research project may involve a lot of components that may pose a challenge of staying focused to the team conducting the research. Such big projects may involve a lot of input of resources, time and effort of the research team who may get tired along the way. It is possible that a research such as this one may encounter many challenges especially in collecting the data and this may lead to the team falling apart (Malterud, 2001). Internal problems are likely to reflect on the outcome of the research. This challenge can be overcome through:

One: Monitoring the attitude towards the research during data collection. It is highly likely that when there is a lot of work to be done in the research, that the team collecting the data may feel overwhelmed by the amount of work. Most people would give up on continuing with the process and this may not give a good outlook on the results of the research at the end of it all. It is necessary to remain calm and develop positive attitudes towards the process and this helps to create a conducive ambience necessary for efficient working;

Two: The best way to stay focused in collecting data is by undertaking a technique that one is comfortable with or that which motivates one. This means that in gathering the team for the research, it is important to select individuals who are passionate about the specific topic under study. More often than not, when the wrong people are tasked with doing a particular task, then tend to feel de-motivated while at it. Since morale is infectious, it is important to get the people who are passionate about the study. This means that along the way when some feel de-motivated, the others are able to inflict the psyche into the de-motivated ones making the work proceed smoothly;

Three: Get small rewards. Rewards are a form of motivation that would encourage people to stay on track with the tasks that they are undertaking. For example, when collecting data, one can set targets and when these targets are achieved, it is important to reward yourself for the job done. The small rewards encourage people to take their tasks more seriously and at the end of it all, they can obtain the efficient data needed for the survey;

Four: Request for help. No man is all knowing even in their areas of expertise. The stipulated methods for collecting the data relevant for his research may seem easy but the real task of obtaining the information may be overwhelming or difficult. Consultations not only make the task easier but are also an avenue for exchanging relevant knowledge concerning the research. Sharing your goals with others only help you to get the support needed to achieve them. As a matter of fact, consultations help to save time that would otherwise have been wasted on trying to accomplish the task on your own (Malterud, 2001). For this particular research, to obtain data from the different SMEs may be

challenging. However, when one asks for help on how to go about the restrictions of individual companies, then the process becomes easier. Consultations also help to ensure one does not get into problems with the legal authorities. Finding out the legal boundaries of the research from others is a great way to proceed with the study without any emerging problems.

Fourth: Placing weak targets. Data collection is a process that requires the team to set up goals and targets that they hope to accomplish after the process. This poses a challenge because the objective of the study may not be achieved efficiently. This challenge can be overcome by setting achievable targets by the researchers (Malterud, 2001). It is important for researchers to set up baselines along which the data should be collected. This helps in obtaining quality data for producing viable results.

Fifth: Timing. Timing poses a challenge in the collection of data. For this particular research, the data that is needed requires a lot of time for comprehensive data to be collected. The companies are functional organizations, and this means that they are always busy. To get information from the companies requires the researcher to time when it is convenient for the company to disseminate information. However, these timings may not coincide with the timings of the research. This situation may lead to insufficient data collection leading to incomplete results. This challenge may also prolong the timeframe for the research, and this may undermine the relevance for the study. To overcome this challenge, it is necessary to get in touch with the companies before research to find out the best times to collect data from the company (Malterud, 2001).

Sixth: Another challenge that might be faced is the biasness of both the research itself and the participants. For this particular survey, the companies may give partial information that favors them on the subject matter. Companies may do this to build their reputation by giving out false information. In addition to that, the companies may fail to give information that shows their negative attributes. With unreliable data, it becomes hard to analyze the data that will be obtained rendering the research useless (Malterud, 2001).

3.2.4.The data

For the convenience and clarity of this chapter, all data and transcripts are attached as appendices at the end of this paper. See Appendix I.

4. DATA ANALYSIS

4.1. Introduction

Successful industrial companies in the world have been recently concerned with important concepts in order to survive throughout the tough competition with other industrial companies in the market. These concepts are project management, portfolio management, and innovation management. In this study, the seven interviews that were conducted inferred significant issues that are worth discussing related to these concepts.

4.2. Explaining and interpreting collected data

In this section data collected by seven interviews, a group discussion a survey and observation will be explained and interpreted.

4.2.1.Interview one

In this interview (See Appendix I: Interviews Transcripts), the interviewee explained these concepts in terms of importance and how they are generally applied. He emphasized innovation. According to him, it has the ability to keep the company in a certain industrial field competing with other companies in the market using continuous innovations such as new ideas and new types of products or services. “Maintaining innovation can put you on the top of your competitors in the market”, he said. However, he added a crucial point which is that one should keep himself updated about the performance of the competitors in the market. It means that the company should not isolate its work between its own walls; it should learn about the competitors’ products, work, strategies, and type of staff as well. The second important concept is portfolio management. In his opinion, portfolio management is assessing projects according to whether these projects are worth accepting or not, whether these projects comply with the objectives of the company or not, and whether these projects are expected to succeed or not. When it comes to the third concept, project management, the interviewee explained it as determining the steps and the processes and identifying who is in charge of each step and process in order to achieve the final goal of the project.

Despite that the interviewee stated that the three concepts are very interrelated, but he ranked them according to his point of view of importance as follows: “From a project manager point of view, I would rank project management in the first place, innovation management in the second place, and the last is

portfolio management", he said. It is possible that he believes that his job as a project manager is the most important since the project management is where the correct strategies are identified, and suitable persons are chosen to apply these strategies. However, the explanations provided by the interviewee inferred a rich background and experience in the field of the three concepts. Despite that he is a project manager, he has an overview about the other two concepts in the theoretical and practical forms. In other words, he is not confined to his own work merely, but he has sufficient knowledge about what is occurring in the industry in general, in the market, and in the company itself. He knows many details outside project management which reflects excellent educational background, many years of experience in the industry, and great ability to comprehend the nature of the work of his coworkers.

Regarding frameworks, the interviewee believes that using a framework in general sets a detailed plan to reach the specified target, the desired results, and within the required time. For this reason, he said, "I like and recommend using it for teams and individuals". He believes that a good framework which is well-planned and carefully studied should facilitate, smoothen, and accelerate the work of the company in order to achieve its goals. In other words, the interviewee emphasizes the use of frameworks because they provide a possible anticipation of the requirements, costs, resources, and outcomes of the project during a certain timeline.

It is understood from what the interviewee has mentioned that the company has its own systematic and well-organized framework which is based on years of experience. The company have been recording throughout the years its errors and successful practices with the consequences of the errors and successes. They reflect on what they have recorded and decide what they need to keep, modify, or discard. In brief, the company is satisfied with its own framework; they are continuously improving it based on fieldwork results. Therefore, the company is ready to adapt to the new framework only if it appeared to be much better than what they are currently using, based on careful study and examination of the new framework.

Despite the usefulness of frameworks when it comes to organizing and facilitating the operations of the company, the interviewee revealed some worthwhile points of weakness about the available frameworks in general. The first point he revealed was that many frameworks are unidimensional. By unidimensional, he means that they take the work in one direction, while real-life circumstances of the work and the market require moving the work in various directions. In other words, he said that the emphasis should not merely be on innovation; the three concepts project management, portfolio management, and innovation management, are essential for being brought together in the framework

mainly when applied in smaller projects. The second point he revealed was that many frameworks are designed for very big teams and projects with long-term objectives or for very small processes.
In brief, what could be concluded from this interview is that a suitable framework for such companies requires interrelating the three concepts, project, portfolio, and innovation management in order to provide the required flexibility in directing the work while maintaining precision and professionalism. Despite that improving the performance is very important; however, it is crucial to take in consideration while building a framework the necessity of having criteria for portfolio management and standards for encouraging innovation.

4.2.2.Interview two

Similar to the previous interviewee (See Appendix I: Interviews Transcripts), he believes in the importance of the three concepts and that they are interrelated very much. Throughout the interview, he describes how each concept is useful in the business field. For him, portfolio management allows the team who is responsible for making the decision about the given projects to discuss the pros and cons of similar projects in order to choose the most appropriate one. The team assesses the available resources compared to the requirements of each project in order to decide how to achieve the highest amount of profits with the minimum amount of expenses and resources. This means that the interviewee's company is interested in increasing the amount of sales and decreasing the expenses. In other words, during the portfolio management process, the team needs to choose the project which balances between attracting a greater number of customers and requires less resources. Regarding project management, he says that project management is the plan of how the execution phase is going to take place. In his opinion, good project management should work on increasing customer satisfaction through providing better, faster, and higher quality work. This shows that the interviewee emphasizes on improving customer service during the project management phase. In terms of business, customer satisfaction preserves current customers and attracts new customers; consequently, leading to increased sales and higher profits. Also, he says that good project management should be able to predict possible future problems and be ready to work them out before they occur. This means that the project management phase is not only a planning phase, but it is also where expert project managers can detect or forecast probable problems and obstacles which might encounter them in the future. Usually such project managers are able to detect such problems either based on research or experience. Finally, he sees innovation management as a part of everything starting from choosing the project phase, going through the planning phase and ending with the execution phase. For him,

innovation should improve business efficiency in terms of enhancing the core operations and engaging employees in a more effective way. Also, he believes that innovation management can play an important role in recruiting high-quality employees and building a good reputation for the company in the market. This means that innovation management is not only improving the product, it is also improving the work process, the quality of the staff, the network of the company, and all the phases that the work process goes through.

Just like the previous interviewee, this project manager ranked project management in the first place. In the second place, he ranked innovation management; and in the third place, he ranked portfolio management. However, this interviewee emphasized that the success of each concept depends on the other, sometimes indirectly and sometimes directly. This infers that the success of a company is not dependent on one person, it depends on the cooperation which occurs between different departments of the company, all types of management in the company, and all the staff members. In other words, it is not the "I did" trend anymore, it is the "we did" trend in the current business world.

What can be concluded from the interviewee's words is that he has a lot of practical experience in the industry which makes him admit the importance of the three concepts, despite that he believes that his role as a project manager is the most important. However, his information about each concept is generally related to the significance of each concept in the market of the industry only. He knows where each concept falls in the business process, but he did not state detailed information about the nature of each concept, rather he mentioned the role of each concept in the business industry. This shows that he has a general overview about the events and processes in the market of this industrial field.

According to what the interviewee has said, a successful framework facilitates one's work and makes it better, while complicated frameworks control one's work because they are designed to abide with certain rules. This means that using a framework would be a good or bad idea depending on the framework itself. He stated that sometimes the team that uses the framework might feel that the framework needs some modification to fit the actual process of the project; in other times, the team might feel that the framework is good, but the team needs to modify the way they deal with it in order to improve the work processes.

Therefore, we can conclude from the interviewee's sayings that frameworks should optimize the operations' processes; however, until now there is no one perfect framework that fits all business projects in the industry based on what he said. This can be translated to the business reality as follows: things that take place in the workplace and the market cannot be planned one hundred % in a distinct area or cannot be even expected sometimes for two simple reasons: First, each company has its own

vision, rules, and strategies. Second, the company cannot control all the events that take place in the market and the industry. As a conclusion, when a framework is designed, it should be built in a way that is open to a certain extent for modification, in order to move along with the directions of the company, the industry, and the market in a harmonized way.

Regarding the interviewee's company, the company currently uses a couple of frameworks by which the company seems to be satisfied. The company has applied certain modifications to these frameworks in order to fit the needs of the company and provide for the company satisfactory end results. For this reason, the company does not appear to be very interested in a new framework since they are happy with the end results. Thus, it is not for them an urgent matter.

Therefore, any newly offered framework for this company would only be an interesting offer in case it showed them that it has the capability of optimizing the end results. In simple words, as long as the framework is not going to provide the company with higher profits, then it would not be a worthy matter for the company. At the end of the interview, the interviewee stated major issues that make some companies avoid using certain frameworks. The interviewee said that some problems which are faced by companies with certain frameworks are that they tend to be too complex; they have too many features and require too much time. On the other hand, he explained that companies do not want something which is too general as well because it would not add anything to the process. What can be assumed from the interviewee's words is that the companies want a framework which is flexible, easy to use, improves quality, increases the quantity, provides quick results, and increases the profits at the end.

After all, all companies are open to provide to the customer what they need and to make in return some profit. However, companies want to improve in an easy way; this means, they don't want something that requires a lot of time in order to learn how to use it. Companies are looking for something which is user-friendly, provides higher profits, and increases customer satisfaction. Therefore, the framework which should be offered has to have what the companies need in order to facilitate their work and increase their profits.

4.2.3.Interview three

The third interviewee (See Appendix I: Interviews Transcripts) described the three concepts in the sense that they are taught in universities as separate sciences, however, in the business world they form a complete cycle. This means that in the business reality, things do not occur separately, and events don't take place distinctly. Everything is interrelated and has an influence on various factors around it in

the market and in the industry. In other words, it is necessary to ensure that all the three concepts are implemented properly, otherwise one would not achieve the best results.

For him, the three concepts are not only strongly bonded together, but they are related to the company's objectives, the staff and the tasks in the company, the industry, and the market itself. In his point of view, each concept has a certain impact on the company, the industry, or the market. For example, he said that innovation management allows establishing an innovative culture within the company which leads to improved productivity and consequently increases customer satisfaction. Another advantage of innovation management in his point of view is that continuous innovation makes the brand more valuable and highly recognized by the market and the industry. In other words, good innovation management improves the work process of the company, improves the quality of the product, satisfies the customer, and places the company in a good position in the market and the industry. For the second concept, portfolio management, the interviewee stated that good portfolios attract executive management and involve it in discussions of strategies, related to dealing with the projects in these portfolios. The interviewee added, as well, that good portfolios provide a clear picture, especially for the costs, the scope, the data, and the progress of the project. This means that when the portfolio management organizes the projects in a clear manner, the decision will be taken easily and correctly, the vision of the consequences of each project will be clear, and the involvement of various types of management will be more effective. For the third concept, project management, the interviewee perceives it as an approach that allows the working team to develop new skills and strategies, resulting in a team which grows by value not by size. Consequently, good teamwork and practices will reflect a good view about the company in the market.

In his perspective, innovation management is the most important; then comes project management in the second place, and finally portfolio management. This is his view in terms of importance; however, he perceives that all of them should be managed in the best way in order to achieve the best results and reputation in the market and the industry. This reveals that he emphasizes innovation a lot because innovation can be implemented in every phase in the work process. Thus, innovation can be present, not only in the product idea or the working staff, but it can exist in strategies which are novel and useful.

Therefore, what can be concluded about the interviewee's mentality is that he cares about the holistic picture of the work process. He is not merely interested in end results or the process. He is interested in the whole picture. What he cares about is building a quality working team within the company in order to maintain innovation, enhance quality, increase productivity and form an attractive reputation in

the market. This type of perspective in dealing with these concepts could be due to his broad experience in different countries which made him learn a lot about the business industry.

In general, the interviewee believes that frameworks are designed to provide a clear approach of how to complete certain tasks and achieve certain goals. This means that the main role of the frameworks is to assist in the work process in order to obtain the desired results. Besides, the interviewee said that frameworks "promote a culture of commitment and straightforwardness among the employees in performing tasks inside the company." This shows that some companies prefer to do certain tasks according to how they are meant to be in the designed frameworks instead of trying to figure out how to do these tasks; thus, things become easier for the company management and the employees, and less time would be wasted.

In his point of view, frameworks should include three main elements: flexibility, orientation, and acceleration. This can be interpreted as follows: frameworks need to be open for modification, when necessary, direct in a clear way the work process, and allow the company to get quick results. Therefore, the company's management would choose the framework which makes their work easier and faster, in order to make sure the customer is satisfied, not only in terms product quality, but also in terms of service quality.

According to him, the utilized framework has an impact on organizing the team and raising their performance. To put it in another way, the framework is designed to organize work by making the tasks clear, regarding how to be performed. For example, the framework should provide instructions and features which are easy to comprehend and use. This way, the employees would know what to do, how to do, where to do, and when to do each step, which increases their performance in return. Also, he mentioned that the framework which is chosen by the company influences the final outcomes and the sales of the company. To clarify, the framework should present clear, realistic, and obtainable goals in the market. If the goals are not clear, they cannot be implemented well. If the goals are not realistic, the company will encounter obstacles during the execution phase. If the goals are not obtainable, the company will waste its time and lose its budget because they worked on unachievable goals.

When the interviewee was asked whether they currently use a specific framework in their company for the projects, the answer was surprisingly that they do not use any framework. It is clear from what the interviewee said that this company is managed according to the mentality of the working team. This means that the working team has agreed upon a certain method in managing the company, so they are not interested in changing it. The interviewee stated that he is not against using frameworks, but he did not find what suits his company's projects. It can be assumed that they are not interested in searching

for the most appropriate framework which coincides with the company's goals because this is how they got used to running the company.

Another shocking point which the interviewee mentioned was that the management of the company does not recommend using a new framework because they might have to change their approach in the work process. In other words, the company is not concerned about making any change in the way they manage the company because they do not want to change their strategies in the work process. This company's management is only concerned about the sales rate and customer satisfaction, according to what the interviewee said. Therefore, the company's management does not care about the methods or quality of staff as long as they are getting the desired end results. Probably the manager believes that any attempt to make a change would be a waste of time because they are satisfied with their current approach.

The major weakness that the interviewee finds in many frameworks is that they tend to focus on one specific concept, while what they need is something that allows them to keep an eye on several things at once. Therefore, many of the designed frameworks highlight a certain concept over the others, which is a major issue. Yet the actual work process involves all the concepts portfolio, project and innovation management. This leads us to the importance of designing a framework based on authentic observations to the work process in the company and in the market of the industry.

The interview believes that an ideal framework should be comprehensive in a sense which allows them to take care of various things and progress in more than one direction. To put it in another way, the framework should include all the concepts while being sufficiently flexible in order to overcome obstacles and problems which face managers in this industry. Furthermore, the framework should provide flexibility in terms of catering to the changing needs of the market. If the framework is very strict, then trying to modify according to new needs of the market will be very hard.

4.2.4.Interview four

The fourth interviewee mentioned (See Appendix I: Interviews Transcripts) that portfolio management involves choosing the project which best aligns with the company's strategies, methodologies, and general objectives. Thus, his words indicate that portfolio management is very important because it is the stage at which the team discusses and decides on the most appropriate project. Portfolio management is the stage at which the responsible team assesses the project's requirements, values, resources, probability of success, and target market. Based on this assessment, the team makes the decision and moves to the second step where the planning phase begins.

Regarding project management, he thinks that good project managers tend to manage the project in a flexible way; that is if the project manager finds at any stage of the work process a smarter direction to take, he would easily do it. With this in mind, project management is affected by the mentality of the project manager and his style of work. That is, if the project manager has an inventive mentality, he is more likely to be open for change or innovative ideas. He would, also, make modifications in the plan and in the directions of the work process whenever he thinks it is suitable. The project manager might find an easier strategy, a more customer-attractive service, or a more profitable idea. Based on this, the project manager makes the appropriate adjustments.

When it comes to innovation management, he highlighted that it is involved in the other two concepts, according to what he said. He considers that a company which does not challenge itself to offer something new is at risk of going out of business. The market has become very open, especially with the presences of the internet connections and the media. Everybody now knows what takes place in other areas of the world and in different fields. This makes the competition higher and the innovation becomes a necessity in all fields of industry. Also, the customer has become capable of searching the internet for the best offers by various companies. Therefore, if the company is not innovative enough, it is at risk of losing its position in the market. However, he assumes that all the three concepts come in equal %s in the industry in general as they all affect the consistency of the businesses in the market. Hence, it is crucial to give each concept the best effort, time, and thought, in order to achieve the best results.

The interviewee's reaction towards using framework was neutral. He said that it has to do with the nature of the framework. He clarified that it should answer all the following questions: How is it going to help me? Why do I need to use it? What phases shall I complete with it? Therefore, it is important to assess the value of the framework, according to a certain criteria, which are set by the company. Based on this criteria the company decides if the framework is beneficial for them or not.

Furthermore, the interviewee thinks that the managing style of each project manager differs, so it is not helpful to set one road and ask all managers in a company to follow it. Unless this road was flexible and big enough, in a way that encompasses many styles, and it shows only the main direction of the approach, not the detailed steps of how to do everything, otherwise it will not be helpful. Hence, a framework would be more helpful if it is comprehensive for various styles. Also, it should not be so detailed in order not to restrict the actions of the managers and the working team.

In addition, his belief about frameworks is that they affect performance of the team who are using it. It is designed to guide them through the right track all the way from A to Z. To put it in another way, a

framework directly affects the performance of the working team because it is the plan upon which they move throughout the work process. Yet, he sees that the framework's impact on the sales cannot be measured directly; however, it is possible to quantify the impact on the sales by measuring the enhancements which take place throughout using the framework. Consequently, the framework's impact on the end result can be estimated while using the framework and observing the enhancements it makes while putting it into action.

Regarding the interviewee's enthusiasm towards using frameworks, he mentioned that they rarely use frameworks because he is not satisfied with what is currently used in the market. He believes that most of them are theoretical and could be used the best in university labs and classes. There is no doubt that he could be right to a certain extent, because frameworks should be built in a way to fit the real events that take place in the company and in the market. Thus, any framework which is offered to this company would only catch their attention if it appeared applicable and practical for them.

Despite the interviewee's unsatisfactory view about current frameworks in the market, his working team recommends using frameworks. He said that this recommendation comes in the shape of organizing data and operations in order to have clear and defined steps and information in the working process. This is true because organization in the work process allows the work steps to take place at a smooth pace. However, unclear instructions will result in complications, confusion, and contradictions among the working team. Consequently, the team will waste its time trying to figure out a working process to agree upon it together.

The interviewee believes that some companies avoid using frameworks due to the rigid nature of some frameworks. He explains that they are not easy to modify or even slightly adjust. This could be a point of weakness in some frameworks because it restricts the directions of the work processes. Provided that project managers need some flexibility to address the changing needs of the market and keep an eye on the variations in customer satisfaction. He believes that an ideal framework should be agile at all levels while maintaining discipline, alignment, and professionalism. Therefore, an effective framework should not be stiff, but it should be agile enough to allow possible modifications in order to deal with unexpected events that might appear in the work process, in the industry or in the needs of the customers. At the same time, the framework should provide clear instructions and easy steps in the work process. It should also align with the general objectives of the company. It should provide professionalism in the work process, as well, in order to clarify the role of each person in the working team.

4.2.5.Interview five

The interviewee (See Appendix I: Interviews Transcripts) was trying to stress throughout this discussion the fact that the twenty-first century is the era of innovation. For him, innovation should be at all levels, otherwise you will be moving towards slowly going out of business. It is true! The reason is that any company should maintain novelty in order to preserve current customers and attract new customers. He assumes that innovation keeps the employees engaged in the work process, so they feel that they are a need for the company, which makes them less likely to leave. Therefore, innovation makes the employees feel that they can make a difference in the workplace, so they feel productive. Consequently, if the company rewards them for maintaining this productivity and innovative character, they are more likely to stick to the company and work harder than before. Another advantage of innovation, in his view, is that it challenges the employees and provides them with the opportunity to solve problems in a novel way. The problem-solving opportunity, as well, makes the employees feel that they are doing something unique which only smart people could do. Consequently, the employees will feel that they are enhancing their mental skills and promoting their professional development. In other words, employees who feel that they are making a difference at their work, while gaining experience and enhancing their skills, are more likely to put effort in the workplace, in order to preserve this feeling in their hearts and in the minds of the people around them in the community.

As for project management, it has to do with every single step that needs to be done in the project as he said. For him, project management is directly linked to the success of the project. This could be due to proper planning and execution of each step and each phase by the managers as they cooperate and continuously discuss things together. He adds that good project management enhances the quality of the project itself and the portfolio it belongs to. It is so because good project management makes sure that the planning phase is done properly and each step towards the company's goal is clear. Everybody knows what to do and when to do. Everybody knows how to carry out each step. Moreover, good project managers involve the team in the planning phase in order to discuss possible obstacles which are faced by each member, as they perform their tasks. This way, the management can avoid many prospective problems and allows the employees to feel that the company cares about making things easier and clearer for them. The employees would feel that the management wants to provide for them a better work environment. Therefore, the company will obtain better working environment, better working staff, and higher quality outcomes in the end. Due to the enhanced quality and good resource allocation by expert project managers, he says that the result will be a noticeable increase in the quantity of the

product, the service, or the project. In other words, the increase will not only be in quality, but also in the quantity.

While in portfolio management, the interviewee says that this concept is more related to ensuring proper decision making and better strategic planning. In his point of view, good portfolio management makes sure that all projects are aligned with their strategies and direct them towards achieving the business goals. Again, this can be achieved when the company's management involves its working staff in the discussions, during all the phases of the work process. Such discussions maintain accurate moves in every phase, starting from the decision-making phase in the portfolio management, until the company reaches the final outcomes. Another worthy point that he mentioned, when considerable assessment of the projects is done during the portfolio management phase, the results would be consistency of success and an increase in the rate of success of individual projects. Therefore, every phase in the work process should be taken in consideration even if the interviewee believes that innovation is the most important; however, if the management gives each phase the required time and the efforts, the results are most probably going to be victorious.

Concerning using frameworks, the interviewee spoke in a very positive way about using them. He recommended using one or even multiple frameworks, because he believes that frameworks can save the company a lot of time and hassle. He said that good frameworks have clear steps or procedures for managing the workflow. To clarify, whenever the company has the procedure of the project clear and easy to use, then the company is ready to execute the project. Thus, they save time and effort. He added that frameworks have advantages such as they help and ensure a fixed direction of a certain approach. He resembled the framework to a steer which guides the working team to pass through multiple checkpoints where each member of the working team confirms that they have all the essential needs on their critical journey. In other words, the framework not only provides the plan and the procedures of the workflow, but also it provides information about what is needed to accomplish the project until the end.

He believes that successful companies are concerned about the impact of the framework on the final outcomes. In his opinion, the performance of the team is only a tool to reach the final objectives of the company. Hence, he seems to have good experiences with using frameworks, since he finds them very helpful and timesaving. Probably, he finds them useful in terms of organizing the work and providing clear instructions for working team. However, how will he know that they will impact the final outcomes, in a positive way, before using them?! Most likely, he uses frameworks which have been previously applied and have proven to result in satisfactory outcomes for other successful companies. Probably,

he assesses various frameworks that are used by other companies and examines which ones mostly align with his company's values and objectives, then, he would decide which one or ones are the most appropriate to embrace.

Despite that the interviewee recommends using frameworks, he said that they do not have a full model framework. He declared that they have designed some sort of a simple framework, which ensures facilitation and simplicity among the procedures. They use it in some phases of the projects and not always. However, he said that they need a framework which helps to define the most suitable practice for each situation. At this point, the company appeared to be in need of an advanced, easy-to-use, clear, and professional framework. In other words, the company is in need of a framework which is up to date with the needs of the current market. Also, the framework should not be complicated in terms of using; it should be user-friendly with clear instructions. Also, it should be professional in a way that provides quality type of work among the staff, quality type of products or services, and larger quantities of sales.

Among the disadvantages of some frameworks, the interviewee stated that some frameworks lack agility and require the engagement of few individuals. As other previous interviewees, this interview appears to care about a flexible framework, which allows managers to move in different directions, depending on the surprising events that show up when the project is executed. Also, it is clear that the interviewee is supportive for engaging a bigger number of employees in the company's discussions and meetings, because the more employees are involved, the higher the probability of innovation. More discussions lead to more ideas. When there are many ideas under study, the best ideas are usually chosen, leading to better outcomes. Therefore, an important strength that the interviewee is looking for in a new framework is something that engages various departments and types of staff, in order to reach the best results in quality and quantity.

4.2.6.Interview six

The interviewee here (See Appendix I: Interviews Transcripts) has portrayed the three concepts in an attractive way. He imagined that the three concepts are three magnifiers. The portfolio management was the magnifier with the wider look; it consists of the general projects that the management selects, according to the company's interests and benefits. In other words, one can understand that portfolio management includes the assessment phase of the project and the decision phase whether the project is worth taking or not. During portfolio management, the interviewee said that a compare and contrast process takes place during this phase; thus, it allows the management to understand the load over

each business unit. Therefore, one can infer that the portfolio management phase is useful, as well, for evaluating the work pressure which will be held by each business unit.

The closer magnifier, according to the interviewee, is innovation management where one needs to ensure that the projects are adding a new value to the company. For him, innovation is not merely related to the product or the service; it can influence the staff by boosting their motivation. That's true! It is so because innovation allows the employee who provided the novel idea to feel with a sense of belonging to the company and a higher self-confidence. Also, innovative employees will feel motivated to work better in order to maintain in the minds of their managers and administrators a view that these innovative employees are a need for the company's success.

The closest magnifier, said the interviewee, is project management, that is used to optimize the project's processes and ensure the highest efficiency. He believes that the role of project management is to provide accurate definitions of the scope, schedule, and the budget of the project from the very beginning. In other words, the role of the project manager is not merely planning; it is also defining the tasks and distributing the tasks. His tasks include, as well, executing daily operations and evaluating whether each task is being done properly. The project manager specifies the timeline of the work. He identifies the required resources and budget. Therefore, the project manager's work is almost defining every step in the workflow, from the beginning until the end.

In brief, it is clear that the interviewee has a sufficient practical background in the industry in a way that he was able to put each concept in an abstract picture. This picture allowed us to see how the three concepts are interrelated, but which one is more general, and which one is more specific. What he explained pinpoints to where most of the efforts are put; this working area is the project management. He believes that frameworks are useful but there is a need to tend towards generality and not details, in a sense that they do not have to list of exact instructions for processes, such as how to do this and that. Instead, it should set a roadmap for completing this job. This means that the framework should not restrict the style of work into specific methods; it should allow the management to choose the most appropriate methods and strategies for them. Therefore, the framework should direct the work into systematic tasks without specifying the methods to perform these tasks. This is to facilitate the process instead of complicating it.

He complains that it is necessary, in the construction and building materials industry, to make an effort in the practical domain by translating theoretical words into actual methods. The term framework should be used for a broad range of activities and business processes. Based on what he said, it is necessary to try the frameworks, which are constructed in the universities, through systematic research

in order to evaluate the frameworks and modify them according to practical requirements of the companies and the market.

He added that companies cannot quantify all the values of the impact of frameworks. Some values are seen qualitatively. This means that part of the impact can be quantitative, such as the profit and the rate of sales. Unlike the other part of the impact which can be qualitative, sometimes the impact of the framework can be better communication among the departments, increased motivation in the performance of the working team, or improved organization of the operations of the workflow. Such impacts are qualitative, which means they can be observed but not specified by number. In brief, both, the team's performance and organization and the company's final outcomes and sales, are impacted by the utilized framework to a certain extent.

This interviewee does not seem very enthusiastic about using frameworks, because they got used to focusing on the results rather than approaches. The interviewee said that the company's management does not feel that there is a necessity for using frameworks, because the company relies on the manager and how he chooses to deal with the projects and situations, depending on the circumstances. This reveals that the company's management is not interested a systematic framework, rather they care about the survival of the company in the market. In other words, as long as the company's management is satisfied with the rate of sales of the company and as long as they are pleased with their situation in the market, they do not care a lot to follow an organized framework.

The interviewee assumes that many companies avoid using frameworks, due to certain weak points in them, which are that these frameworks do not help the companies solve their problems. This could be true to a certain extent! Although some frameworks provide a map of the workflow, but some do not offer a solution to many problems, which are encountered by company managers in the practical process of the work. He believes that companies are searching for what meets their needs and fulfills their requirements. What needs did the interviewee mention? He mentioned that companies need something which supports three main things: alignment with strategies, project acceleration, and more communication. This means that an effective framework should be in harmony with the type of strategies companies use in this industry. Also, it should facilitate the work process by providing quick work processes and ensuring fast satisfactory results for the customers.

4.2.7.Interview seven

This interviewee explained (See Appendix I: Interviews Transcripts) about the three concepts in terms of their influence in practical life. He said that the industry of the construction and building materials

requires ensuring the highest levels of project management. Project managers' main concern is getting the project done within the budget and time constraints. Therefore, the project managers care the most about the success of the project, but they emphasize on executing the project within the available resources and budget, having in mind the specified time limit. It is so because this is what real work demands, due dates and deadlines. If they do not finish work on time, there are other competitors in the market who might be ready with better and faster offers.

For him, innovation management should exist at all levels and be part of all other concepts. He believes that the advantages of innovation exist in optimizing the operations. He clarifies that optimization means reducing wastes and increasing efficiency, which results in huge reduction in costs. Thus, innovation is not only in the product or the service, it can also occur in the way the company operates its work. Therefore, innovation's role is not merely related to increasing the rate of sales, but it can be related to reducing expenses, which is another type of obtaining profits.

Portfolio management has an important role in minimizing overhead and bottleneck in his point of view. He said that this happens when the resources are shared, teams are collaborating, and project plans are clearly discussed in one place. Such a way of collaboration from the beginning results in better team performance, which affects the final outcomes. This is why it is important, during portfolio management, to gather all types of managements and related departments, in order to share views about the work process and discuss possible barriers which might pop up during the work procedures.

After all, the interviewee believes that the absence of any of the three concepts in the work process would negatively affect the end results, and accordingly, all the levels of the business. It is so because every phase of the workflow is important to be dealt with correctly, in order to achieve the objectives of the company. Otherwise, any wrong operation might cost the company a big deal of money. Dealing with all the three concepts, as one interrelated entity, would help managers get better results on all business levels. In other words, team cooperation from the beginning until the end of the project is important to overcome problems quickly, to facilitate operations, and to share resources. Team cooperation and team discussions are the spot where useful methods and excellent ideas are invented.

Regarding frameworks, the interviewee sees that they are very useful. He said that some companies might even build their own framework, depending on their needs and culture. Similarly, some companies adopt a certain framework and modify it in a way which fits their goals and needs. However, he recommends using a framework after doing a thorough assessment for the business needs. This is a significant point to draw our attention to! It means that before adopting a framework, it is necessary to assess it in terms values, objectives, and usefulness. It is necessary to assess it in terms of all the

possible limitations in it. If the framework has major advantages and few limitations, then it might be modified and adopted by the company. However, if it has major limitations which would hinder the work process, then it will be discarded by the company.

According to him, usually successful managers provide their teams with a business framework so they can work efficiently on a group and individual level. As a consequence, the work process will be organized, and the instructions will be clear for every member in the working team.

The interviewee highlighted that part of the impact of frameworks can be measured by numbers, such as the sales rate. The other part of the impact of frameworks influences the team performance, but it is assessed in terms of business objectives. This means that the team performance is measured by the number of objectives achieved. If the team failed to achieve the objectives of the company, then the team has failed in their performance.

Obviously, this interviewee encourages using frameworks, especially that the team, who is working with him, encourages using frameworks. He said that his working team recommends a framework with defined approaches, and then the team would work on enhancing it every time. This is a valuable method, which can make the work process move in a smooth pace, because the directions are set, and the instructions are clear. Therefore, it would be for him something useful to have a professional and easy-to-use framework, which is parallel with the company's objectives.

A major issue in frameworks he mentions is that frameworks that hinder the work of the company due to many rules and regulations are something that many companies don't want. For them, time is money. Thus, although the companies prefer to have a clear guide to the workflow, they do not want something that is complicated in all aspects. The interviewee said that the best framework should balance between high quality and efficient processes on one hand; on the other hand, they want something which is not time consuming.

In brief, the major weaknesses in a framework would be that it might be complicated or time-consuming. Unlike, a major strength of the framework would be that it accelerates the work while improving the quality and quantity of the final outcomes. Thus, any framework which might be interesting for this company is more likely to be simple in its instructions, general in the directions, and professional in terms of application as well.

4.2.8.Group discussion

In this study a group discussion (See Appendix II: Group Discussions) was conducted with a number of people who are highly professional in the field of construction and building materials. The selection of

the three participants was left for their project manager at the company who has contacted them based on their experience and engagement in several projects that match our requirements. The session was done at their main center in North York, Sheppard Avenue West after a preliminary explanation done by their project manager. A glance at the research topic, details, type of questions and the main areas covered during the project manager interview was given to the three members in order to better prepare and be of a high positive contribution. The purpose of the group discussion that was run by the researcher and lasted for around 20-30 minutes of time was to collect data from a number of well-qualified working team, based on the phenomenon of their experiences in this business industry, in order to construct a useful framework which is based on practical knowledge.

The purpose of the group discussion was to collect data from a number of well-qualified working team, based on their experiences in this business industry, in order to construct a useful framework which is based on practical knowledge.

The group discussion covered three main areas:

1- The impact of the three concepts, project, portfolio and innovation management on the tasks of the audience;
2- The opinion of each member of the audience about the current frameworks being used nowadays;
3- The characteristics of an ideal useful framework, according to the opinions of each member of the audience.

Starting with the first point, which is the impact of the three concepts on the tasks performed by the members of the audience, in terms of importance and influence, the audience said that what practically happens is the following: when the team is assigned to a new project, they initiate a meeting where they discuss the customer's needs and requirements. Following that, they begin to brainstorm the approach which they plan to use to deal with the project. This would be like a framework of their own invention, even if they do not call it a framework. Some of the audience mentioned that they tackle the three concepts from the first meeting; others said that they start with portfolio management concept to make sure that the project aligns with the company's portfolio strategy.

In other words, the company assesses the project, and if the top management members find that the project is suitable for the company's objectives and aligns with its strategies, they accept it; otherwise, it will be rejected. It is permissible for the first level team members to present their opinions to the mid-level management about the project, but they do not have a major influence on accepting or rejecting the project by the decision-maker. Thus, portfolio management is the task of the upper management,

who makes the decision. At this point, portfolio management ends. Then, the project is assigned to the qualified working team, who are led by the project manager. At this level, they set a meeting to discuss the assigned project, and the approach they plan to use, in order to execute the project. The working team considers this approach or plan as the framework upon which they intend to deal with the project. At the meeting, they consider innovative ideas and strategies, how they will be applied and to whom they will be assigned as well. Therefore, the other two concepts are implemented starting from this phase.

Moving to the second point, the members of the audience were asked to provide their opinions about current frameworks being used in the market. The audience said that project managers want an approach for the company's projects that has a solid and wide base to support all the concepts they deal with, and having flexible boundaries, which are able to accommodate with the different needs and requirements of the customers and their projects. However, in reality they are not able to find one approach that perfectly fits such a context. Some of the audience said they need a framework which supports business agility while being simple and very effective. They added that they want something with practical approach, not theoretical approach.

Thus, one can summarize what they said by the fact that the companies need frameworks with clear foundations, supportive enough to embrace the three concepts, aligns with various companies' contexts and projects, and sufficiently flexible to fulfill the requirements and needs of the customers. It could be that once they have a clear base upon which they have knowledge on how to approach each project, the working process will be accelerated because the working team would develop at this level automaticity in the way they need to perform tasks and deal with various issues in projects. However, when it comes to having a framework which is supportive to all three concepts, this is more likely to be related to the company's tendency to establish collaboration and communication at different levels of the company. The framework should be more like a guide of how to deal with the project, but if the company's approaches do not involve collaboration and communication at various levels, then the framework by itself will not make it happen. The framework is more like a guide, but it is the company's management who chooses how precisely they want to apply what is in this guide or framework.

The audience stated another issue which is that the current frameworks lack integration of the three concepts. They stated that integration of the three concepts can allow them to move in multiple directions and control the operations the way they want, from one place. They added that integration of the three concepts allows incremental delivery of value projects in different contexts. That will lead, according to them, to high quality results in line with the main strategy. However, they stated that the

nature of the project and the surrounding circumstances can direct the whole compass to a different place. They believe the surrounding circumstances can affect the time, the resources, the budget, and the quality of the work.

Therefore, there are many factors in play, in practical life, when it comes to executing a project. The framework as a guide should provide space for integrating the three concepts in order to achieve higher quality results; however, the surrounding circumstances can direct the work process in a totally different direction, away from what has been planned or assumed. In other words, the framework should be designed in a way which is flexible enough to be compatible with real-life surprises in the business market or industry.

In the third and the last point, the discussion dealt with the characteristics of an ideal useful framework, according to the opinions of each member of the audience. The moderator told the audience that he would build a new framework, which takes in consideration all the needs and requirements he studied, while considering, as well, the opinions of the audience as team members, in order to identify the essential factors which form a good fit for their tasks and operations.

The audience's view about an ideal useful framework was summarized in the following five points:

1. An ideal useful framework should integrate the three concepts, portfolio, innovation and project management;
2. It should allow communication and collaboration among different teams in the company;
3. An ideal framework is more like a roadmap that keeps every single step aligned with the portfolio guidelines, which were defined in the plan;
4. It should provide a clear approach, in order to enhance the ways of measuring success;
5. Finally, there should be some sort of universality in a sense that it can be used in different contexts.

In brief, the integration of the three concepts is something essential in a framework, in order to ensure effective performance by the teams at different levels and to have successful results at the end. Every successful company cares about communication at different levels, in order to avoid problems in the work process, which might hinder or delay the work. Companies care about quality of the work and time as well. Customers are attracted to faster services. Moreover, the vision of the company affects the type of projects they choose and the type of frameworks they require. This means that companies, where the decision is restricted to the upper management, will not feel at ease with frameworks which require communication at various levels. However, companies that prefer communication at various levels will tend to use frameworks that require communication among various teams at different levels.

Moreover, the framework should define each step in the roadmap, in order to stay aligned with the portfolio guidelines. Also, the framework should be clear and simple enough, in order to facilitate operation; consequently, it will be easier to measure successful performance of the team, through the final outcomes. Finally, the framework should be universal in terms of being used in multiple contexts. In this case, when the company finds that the framework is successful, they will use it in different projects and will not have to search for every project for a suitable framework. In the case of finding the best framework, all of what the company's management has to do is to make trivial modifications to the framework in order to fit the next project. This way, the company's working team will be at ease, because they have developed automaticity in dealing with various projects in a certain industry.

4.2.9.Survey

As for the surveys (See Appendix III: Survey), they took the form of "informal surveys" (meaning that they were first designed and issued by the researcher and not the management of the organization) and then they were conducted within the selected companies by different facilitators. Some were done by the interviewee (project manager) himself, and others were conducted by an assistant or other team member who took the lead for collecting the feedbacks manually on papers and through verbal discussions. The point that those surveys were collected by different facilitators and through several forms is based on the fact that the multiple choice questions that are designed to pull data from the participants are ensured to be unified so that we can avoid any biases that might occur due to the differences in the facilitators and methods. The five statements that are the subject of the survey were used by the survey facilitator through different means, in order to collect all the responses. Emails, paperwork and verbal feedbacks were all means used to collect feedback from members within these companies. Over a short period of time, almost a week, the collection of this phase was done. This survey was conducted on 80 participants. The participants were managers and team members in the field of construction and building materials. They were asked to respond to the five following statements:

Table 11: Survey response rate

Statement	Agree	Neutral	Disagree
In terms of the business process: project, portfolio, and innovation management are interrelated concepts.	81%	14%	5%
Using business frameworks is important for making the operations and processes more efficient.	94%	5%	1%
Business frameworks impact the performance of the teams who are using it more than impacting the final outcomes of the business.	79%	5%	%16
Many companies avoid using frameworks because they believe it consumes time and effort more than when avoiding it.	65%	9%	26%
A new framework that supports integration, flexibility, and universality would be a good option for companies who currently avoid using frameworks.	94%	2%	4%

From this table, it is clear that the majority of the respondents (81%) believe that the three concepts project management, portfolio management, and innovation management are highly interrelated concepts. While only 14% of the respondents provided neutral responses, which means that they don't think that in every situation the three concepts are interrelated. Only 5% of the respondents disagreed about the statement. It could be that they have for each concept a certain department which deals with the projects without communicating with the other departments; thus, department is concerned about its own tasks only.

Also, this tables shows that a significant percentage of the respondents (94%) believe that using business frameworks is important for making the operations and processes more efficient. This means that most managers agreed that a framework organizes the work and makes it move at a smooth pace.

Moreover, 79% of the respondents agreed that business frameworks impact the performance of the teams who are using it more than impacting the final outcomes of the business. This means that they believe that frameworks are more likely to influence the order of the work and the performance of the team directly, but do not have a direct influence in improving the final outcomes of the business. However, 16% of the respondents disagreed about that. Probably this percentage (16%) of the respondents believes that the influence of frameworks can be directly on the outcomes. Only 5% of the respondents provided neutral responses probably because they feel that the impact depends on the situation or the project itself.

Another thing, 65% of the respondents said that many companies avoid using frameworks because they believe that frameworks consume time and effort more than when avoiding them. 9% of the respondents answered neutral responses. However, 26% of the respondents disagreed that frameworks

are avoided by companies for that reason. Probably, this last percentage (26%) of the respondents believes that frameworks are avoided for other reasons such as being rigid or containing many rules and regulations.

In the last statement, a new framework that supports integration, flexibility, and universality would be a good option for companies who currently avoid using frameworks a significant percentage (94%) agreed about that. It means that most managers are interested in using frameworks to facilitate the work process and are ready to utilize them as long as provide in the practical life what they need: integration, flexibility, and universality. Those 2% who responded by neutral responses probably are not sure if they are going to be successful using new frameworks with these attributes. While the percentage (4%) who disagreed, probably, are not ready to try something new because they are satisfied with what they have.

4.2.10.Observation

The engagement with the teams to conduct the observation part (See Appendix IV: Observation) came as a "participant observation" which took place in an ongoing working situation, similar to when the observer is a practitioner himself and part of the industry. Over a period of a couple of days of the month of January 2019, the team member's actions, discussions, communications, and decisions that pertains to a certain phase of the project were observed in their working area at their main building in North York, Ontario. The purpose of this observation was to collect data about how team members of a business field deal with a real project in a real setting. Also, this observation allows us to know how the team members and managers interact together during the meeting. The observation provides useful information about the steps that occur in the planning phase and the execution phase in authentic situations.

In this observation, the manager was the leader in providing the background information about the project. The project manager explained why the project was assigned to them by the top management. From this observation, it was obvious that the portfolio management was restricted to the top management. The working team has no influence on the project choice or cannot provide their opinion about the type of project to be chosen. The communication level between the top-management and the working team seems to be weak.

The project manager set time for every meeting in order to discuss a certain phase in each meeting. There was an emphasis on aligning the execution of this project with its portfolio strategy. This reveals that the project manager and the top management emphasize executing the project according to the company's portfolio strategies. The project belongs to a portfolio set that contains agile projects that are

sponsored by high profiled clients. In other words, the project manager stresses planning for the execution phase and is concerned how the execution will take place.

Despite that the framework was not clear and they did not seem to have a defined approach in order to ensure best innovation and portfolio practices, it is apparent that they deal with the project depending on how they agree during the meetings. For this reason, they set frequent meetings in order to discuss every step, starting from the planning phase throughout the actual execution of the project. Therefore, they deal with projects without clear foundations, but based on the decisions that the project manager takes at the end of every meeting.

Unfortunately, the lack of a clear framework caused an overlap in the tasks assigned among the team. However, good frameworks provide organized approach with defined tasks. Consequently, good frameworks reduce wasting time with frequent meetings, because the tasks are defined and distributed according to certain strategies. Good frameworks allow better communication among the working team and the managers; thus, there is a big room for implementing innovation due to increased communication. Unlike, when the decisions are restricted to specific people in the management, it is hard to identify problems and obstacles in authentic settings.

In brief, the observation showed that the authoritarian style of management in certain companies decreases communication between the upper management and the working teams. The result led to less innovation, more obedience style of working team instead of innovative style of working team, and more time is wasted in trying to solve urgent problems due to reduced organization and the absence of a defined, clear and flexible framework.

4.3. Identifying themes, patterns and connections (NVIVO analysis)

Below is a summary of the thematic coding used in NVIVO software for data treatment and analysis (See Appendix V: Data Treatment Coverage). The software was used to treat and analyze all collected data in order to figure out themes and relations regarding four main matters.

4.3.1.The four main matters

- Matter one:

The participants recognition and understanding of the three concepts project, portfolio, and innovation management and what this can tell us about their direct experience, level of academic education, business mentality and style of work.

- Matter two:

The participants point of view and general assessment of the current situation (in the industry and their company) in terms of using frameworks, its importance and impact.

- Matter three:

The participants enthusiasm and their company's readiness towards using frameworks so that we can better understand how they would adapt our new framework.

- Matter four:

The participants understanding of the weaknesses and strengths of current frameworks in a sense that helps us develop our new framework.

4.3.2.Results for matter one

Matter one: "The participant recognition of the three concepts projects, portfolios and innovation management. And what does this tell us about their direct experience", the participants defined the three concepts based on their different perceptions. Their definitions of the frameworks are as follows.

Innovation management

- It is an approach to solve a complex problem or to execute a certain project;
- Innovation management is essential to the company's success, without innovation companies cannot compete in the market;
- This is essential for any business. Maintaining innovation can put you on the top of your competitors in the market. Also, it is important to mention here that companies need to keep an eye on the performance of their competitors and whether their competitors are coming up with new ideas or products or not. Increasing competitive advantage;
- Innovation management has become a lifestyle, we need to challenge ourselves, we need to introduce something new that has an added value otherwise we will be in the danger zone. What I mean by danger zone is not being able to compete meaning losing our competitive advantage and thus falling under the risk of going out of business;
- The closer magnifier is the innovation management where we need to ensure that those projects are adding a new value to the whole business.

Portfolio management

- In the portfolio strategy there are several things that have direct impact on the final business performance and have to do as well with the positioning of the business. For example, some portfolios are designed to accept only agile projects for certain level of customers (high class) in certain areas of the cities. We need to make sure we are working in line with this strategy.
- Create a road that keeps every single step of our operations aligned with the portfolio guidelines that were defined in the plan.
- Portfolio management is more treated on a scale higher than project management, it is more to help assess the priorities of the projects and what projects make more sense for us.
- Well portfolio management is not something that has to do technically within each project's steps but definitely it has a relation in the sense that the chosen projects have to follow a certain strategy, a certain importance ladder, a certain logical methodology, otherwise you'll not achieve the general objectives of your business.
- Portfolio management is the wider look, it consists the general projects that the management selects according to company's interests and benefits.

Project management

- Project management goes more into streamlining the processes of achieving something, what is step A, B and C and who is in charge of each one;
- Ensuring effective management for projects. Simply because when we follow best practices, we can avoid many problems and smoothly move on with the project;
- Ability to overcome problems quickly. Streamlined and clean process helps the team in finding the solution or the work-around for any obstacle. When things are clear and defined, the riddle is solved;
- Project management is something that made my life easier. Yes, this is true. It is an essential requirement for successfully completing any project, without it you would be losing time, money and effort while achieving nothing. That is what I care the most about;
- The closest one is the project management that is used to optimize project's processes and ensure highest efficiency.

The participants shared with us some their current situation regarding using frameworks. It comes as below.

- Not for now. Some previous managers preferred using some frameworks, but I did not find it that helpful in my projects, so I decided not to. I am not against using it, but I didn't find what suits me hundred % or at least eighty %. At the end of the day I do not want to waste my time and my team's time;
- Not really. They are concerned more into end results and final outcomes. The most important thing for them is the sales rate and customer satisfaction. They would not object if we start using a good framework, but unlikely that they will ask for using it or even for changing out approach. It is something that we as a team decide on;
- I wouldn't say we are relying on any framework although we make use of some of them in rare projects within specific phases. But it is not a frequent case for us. My team suggests from time to time trying some frameworks but again I am not satisfied with what is currently used in the market. Most of them are theoretical and could be used the best in the university's labs and classes;
- Rarely we do. It is not something we use on daily basis. I wish we had something we can all rely on, but we are not there yet. I am still more into flexibility when it comes to management approach. I follow up with my team on results rather than approaches. We are surviving this way although I believe it is time to streamline all of our processes;
- In our company I don't feel the insistency on this matter. It is rarely discussed as the managerial style for our management is so flexible and thus it is more open for the project manager to choose how to deal with their projects and situations depending on the circumstances.

4.3.3.Results for matter two

Matter two: "The participant point of view and assessment of the current situation in terms of using frameworks, its importance and impact", the participants discussed the importance and impact of good project management application and highlighted the below matters.

- Ensuring effective management for projects;
- Ability to overcome problems quickly;
- Increasing customer satisfaction;

- Growth and development;
- Outstanding in the market;
- Better flexibility;
- Enhancing Quality;
- Mitigating risk;
- Accurate definition of the scope, schedule and budget from the very beginning;
- Consistency;
- Tracking and controlling workflow.

Furthermore, they summarized the importance and impact of good innovation management application as follows.

- Optimizing business efficiency;
- Hooking and recruiting top talents;
- Improved productivity and thus increased customer satisfaction;
- More value and recognition of brand;
- Increasing profitability;
- Opening new partnerships and relationships;
- Reducing employee turnover;
- Enabling quick problem-solving manner;
- Boosting staff motivation;
- Reduced costs.

Lastly, they briefed the importance and impact of portfolio management as follows.

- Maximizing resources;
- Transparency and collaboration;
- Grouping similar projects;
- Facilitate executive management Involvement;
- More visibility;
- Improve risk management;
- Facilitate better strategic planning and decision making;
- Success consistency;
- Quality assurance;
- Minimizing overhead.

Regarding the ranking of the concepts, project management was ranked top, innovation management follows, then portfolio management comes last.

The participants perceived that framework have the following effects on the processes and operations.

Two participants said the frameworks help in ensuring:

Consistency

- Consistency and sustainability of success for the projects within the portfolio;
- These are important to drive the process smoothly.

Flexibility

- No doubt that frameworks are useful in certain business contexts. The need to give users more flexibility and not tightness. The need to tend toward generality and not details in a sense that they do not have to list exact instructions for processes such as how to do this and that. Instead, it sets a roadmap for completing this job.

Allocation

- Allocation of resources and integration of processes where needed.

Quality assurance and SOPs:

- Frameworks are considered important to businesses since they serve as defined guideline to achieving certain process, goal, or situation. I like and recommend using it for teams and individuals;
- Mainly, frameworks affect the performance of the team or individuals who are using it. It is designed initially to help them be guided through the right track all the way from A to Z. The business long term goals shall come after. We cannot measure directly the impact of the framework on the sales or business big objectives however, we can quantify it indirectly by measuring the enhancements happening throughout using the framework;
- Quality of work and quality of outcomes.

Teamwork among members:

- We require at our company a framework that supports more collaboration among different teams and brings them together on one table for sharing, discussing, and negotiating. Any tool

or model that helps positive criticism and constructive discussion is of a big value for all our business levels;

- Coherency among teams and individuals;
- Definitely it should facilitate the process and describes the way of how a team or individual creates, delivers, and run a defined task or approach. In the domain of theory and the domain of practice, the term framework should be used for a broad range of activities and business processes.

The frameworks affect three major parameters in an organization in the following ways:

Efficiency

- Those three concepts are meant to organize and streamline the processes in any business, or in other words they are found to optimize the processes;
- Yes, definitely I recommend it. I believe that frameworks are designed basically to set out a clear approach to how we should complete certain tasks and achieve goals. Besides it helps promote a culture of commitment and straightforwardness among employees in performing tasks inside the company.

Operations

- Frameworks shall maintain three things in my opinion, flexibility, orientation, and acceleration of a certain approach. It might emphasize one over another, but it should cover the three of them in a way or another.

Processes

- They are highly emphasized in today's world. All businesses are now concerned about how to ensure the three of them in their operations but still the methods, styles and commitment differs from company to company and from manager to manager;
- For sure it helps. At least this is how do I understand the usage of frameworks. Helping and ensuring a fixed direction for a certain approach. A framework is like a steer that works automatically, it guides us to pass by multiple stations. These stations are just like checkpoints made to ensure we have all the essential needs on a critical journey.

Also, two participants highlighted the impact on team performance and end results as follows.

- The impact is on both. Both of them are heavily impacted in a way or another. As the team using this framework go more through, they think carefully about each detail and step in it and how does each goal fit into this framework. They may even find that some goals don't fit at all. This process will force the team into thinking deeply about alignment between your goals achieved through this framework and the overall objectives of the business. So, the impact falls on both sides;
- Every successful company that uses frameworks cares about the impact on the final business objectives. I meant that the framework implemented shall be linked tightly to the business objectives. The performance of the team is just a tool that leads to another objective. So maybe the impact is on the final results of the business and everything else that got impacted is an extra value.

The participants gave their perceptions of how an ideal framework should look and what attributes it should have.

- You should focus the most on creating an attractive approach the ensures value proposition for the team, the performance, and the end results;
- There should be an emphasis as well on the collaboration and communication among the different teams in a way that the framework should not be operating on the traditional channels, but it should find new channels to bring teams together;
- I am not sure if the framework needs to fit in one kind of business but there should be some sort of universality in a sense that it can be used in different contexts whether in one industry or several industries;
- The framework should exist to facilitate, smoothen, and accelerate the approach of any operation;
- What is essentially needed is a framework that allows us to deal with more one concept at the same time on a basis of flexibility, precision and professionalism. One roadmap that can help us manage our projects while ensuring innovation and meeting our portfolio strategy. Something like this would be awesome and useful;
- In theory, it should assist and facilitate the process. Some frameworks are designed without taking into consideration the simplicity or complexity of the structure, they are designed to

ensure that the process is abiding with certain rules and regulations and to enforce several steps into these processes. Such frameworks do not accelerate, instead they control;

- The framework should be not too complexed and not too general, something balanced and in between in order for us to be able to improve quality and increase quantity;
- They need to have clear steps or procedures for managing workflow or running a process for example. Most companies that use frameworks, they use it for core processes and operations;
- We need something that can support three main things, alignment with strategy, project acceleration and more communication. If we can have a framework that works on these three areas, then I can guarantee that out efficiency will increase by at least 25% from where we are right now;

  It needs to be useful at a small and medium scales. Whether small or medium was the size of the team, the project, or even the company, the framework should fit in all cases.

The participants expressed their opinions about the relationships among the three concepts.

They are interrelated:

- They are interrelated big time. The three concepts represent in a certain way a multi cyclic chain that has dependencies in many sides of it. Specifically, portfolio and project management, the have many things in common. And innovation should fall into both of them or in other words represent the theme for both of them. In our company we emphasize the coherency among the personnel who are looking after each of these areas;
- Both matters are related in one way or another. I mean frameworks have impact on both matters one in a direct way and on the other in an indirect way. The team deals with the framework directly, so the impact should be direct. And if the performance of the team is impacted definitely it will affect the final business outcomes;
- At the planning phase, you have a good room for introducing new ideas and being innovative as much as you can. After that things will take a static streamline in accordance to what have been planned. While working on my projects, I need also to align with the general policy of the portfolio that my project belongs to. Each portfolio has certain guideline and direction that applies to all its projects, but it will remain general and will not control the detailed process of the project. Innovation management is like the umbrella that belongs to all of these levels;

- I believe there is a strong relationship that brings all these concepts together. Not to forget that the success of each of them depends on the other indirectly, and sometimes directly;
- In business, and specifically when talking about processes, you either have a complete cycle of well-integrated concepts or you are no good. That is my opinion, the portfolio that we work on, the project that we run, and anything else are all linked in one way or another. You have to ensure all concepts are well implemented otherwise you not have the best results;
- I would say that the three concepts are related to those three sectors that you are asking about, each in a certain way and to a certain extent;
- Yes, in some ways. I would not say they are always interrelated, but most of the time they are;
- When you come to the industry and the practical world, you will easily find that there are big relations and dependencies among the three concepts;
- Definitely they are interrelated. We come to understand this more and more throughout practice. The coherency among the different teams, the dependencies of each team on another, the common areas, the relationships we have all together, all of these will definitely tell that they are some sort of a chain;
- The role involves some tasks of a traditional project manager along with adequate skills and knowledge related to innovation and portfolio management. Besides there are other factors that come as a plus such as strategic planning, strong leadership, a responsible team and many other factors. You can see easily that the three concepts exist in what I have just explained, and thus the interrelation is quite clear among all;
- The interrelation is in the continuity that each one would give to the other. Dealing with them as one interrelated entity would help managers in some ways get better results on all business levels.

They are not interrelated:

- Separate in the sense that on a deep level you'll find that each one deals with a different side of the business and each one has a different impact.

In terms of dimensions among the framework itself. The participants explained the importance of multidimensional framework vs unidirectional framework.

Multidimensional:

- A comprehensive framework is all what we need. Comprehensive in the sense of concepts allowing us to take care of more than one thing at once and ensuring the progress in more than one direction;
- I cannot define relationships, yet I can explain the impact that each concept might hold. Definitely there is a big impact that happens all the way. And by the way it is good to mention that the three concepts that you are dealing with hold impact on each other, and the three sectors you are asking about also have certain interrelations among each other;
- We need something that can support three main things. The first is alignment with strategy, project acceleration and more communication;

Unidimensional:

- If we want to speak from a theoretical point of view each of them has been recently a separate science that has its own tools, methods, and applications.

4.3.4.Results for matter three

For matter three: “Participant enthusiasm and readiness to adopt and use new framework”, the participants explained the matter on more than one level. At managerial level:

- If you mean our direct management then my answer is yes, they do recommend using frameworks and they emphasize documenting all the processes, lessons learnt, and the best practices that we do. It is something essential for them;
- Yes, we do. It is not only one specific framework; we use couple of frameworks that help us streamline the processes in certain phases of the project. Honestly, we have made some modifications to some of them to be more fit in our case. I believe they are helpful to a limited extent;
- Yes, they recommend. But it is not something urgent for them. You know when you're delivering good end results you don't worry a lot about the approach you are using. They always seek to enhance the approach but as long as our deliveries are good enough, they do not consider it as an urgent matter. It will definitely become something urgent as the projects get more complicated;

- Yes. For them it is important to have a clearly defined approach for your processes as this is related to good transfer of knowledge between departments and divisions inside the company. The recommendation comes in the shape of organizing data and operations. So, their concern tends more towards how to define things, make it clear, document it, and transfer it to others whenever needed. They believe this ensures sustainability for the business and I do agree with them;
- Indeed, they do. Mostly in general meetings, they shed the light on the importance of optimizing all processes. Optimization for us is cleaning our operations from any waste and defining the most suitable practice for each situation.

At individual level:

- Actually, we have built our own approach. It is a simple model, it is not that complicated, but I mean we have designed something based on our internal learnt lessons and best practices. We had to do this as didn't find what perfectly meets our needs and requirements. We always look forward toward having something new, either modifying this one or using a totally new one;
- Yes, we do. It is not only one specific framework; we use couple of frameworks that help us streamline the processes in certain phases of the project. Honestly, we have made some modifications to some of them to be more fit in our case. I believe they are helpful to a limited extent;
- I recommend using one or even multiple frameworks in a way that saves us time and hassle.
- Useful and good for many businesses. Companies might even build their own framework depending on their needs and culture. General, detailed or agile framework are all types that can be used for the same purpose. I recommend using it after doing a thorough assessment for the business needs;
- Definitely yes.

4.3.5.Results for matter four

For matter four: “The participant understanding of the weakness and strengths of framework and how can this help us in building our framework”, the participants revealed their main reasons for not using the frameworks within their companies.

Not Flexible

- Many of them are of a rigid nature and they are not easy to modify or even slightly adjust. This fact makes these frameworks a bit solid and inflexible for us as project managers. I believe this is an important reason that has relation to the final results of the processes.

Unidimensional

- Being Unidimensional. We notice that many of them takes you in one way, while we need flexibility in dealing with different directions. Our medium and small-scale projects need frameworks that merge more than one direction together. It is not only innovation that we need to concentrate on, not only portfolio management, maybe we need them all together especially for smaller projects;
- Maybe they find most of the frameworks deal with one specific concept;
- Project management is the core of our work, innovation management is essential to our projects' success, and portfolio management is something we need to adapt with. So, I do not want to deal with three frameworks each alone. That's one of the major obstacles;
- One of the main things might be the need for agility which is something not supported in many frameworks;
- Another thing might be the weak engagement of wide range of teams inside the company. A framework that brings more than one department or division together for the sake of negotiations and discussions is essential for businesses. The framework that requires only one unique team or individual lacks an important factor.

Not Scalable:

- Other frameworks are either designed for very big teams and deal with wide scales and long-term objectives or designed for very small processes. Something in between is what could be the most suitable for us.

Complexed:

- For such cases, no one will choose to have a complexed framework that Includes too much features and requires too much time. On the contrary, they do not want to deal as well with a very general framework that add nothing to the process. Again, the integration of more than

one thing into a simple form is considered to be a balanced solution that is needed in the market.

Not agile:

- As project managers, we need to keep an eye on several things at once, that what makes our work agile and efficient;
- One of the main things might be the need for agility which is something not supported in many frameworks.

Does not support engagement:

- Another thing might be the weak engagement of wide range of teams inside the company. A framework that brings more than one department or division together for the sake of negotiations and discussions is essential for businesses. The framework that requires only one unique team or individual lacks an important factor.

4.3.6.Representing results in diagrams and graphs

Below is a word cloud showing the words' usage frequencies during the interviews:

Figure 14: Word cloud

Below, the surveys are revealed in the form of graphs to give better understanding of the data collected from the survey.

Statement one: In terms of business process: project, portfolio and innovation management are interrelated concepts.

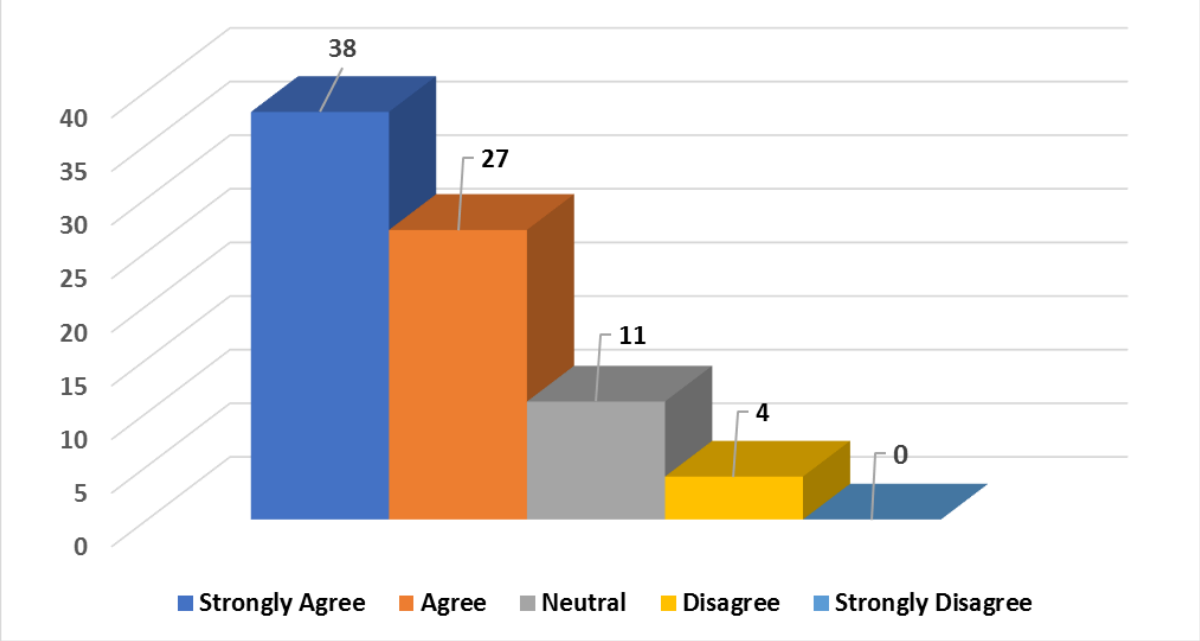

Figure 15: Survey first statement data bars

Statement two: Using business frameworks is important for making the operations and processes more efficient.

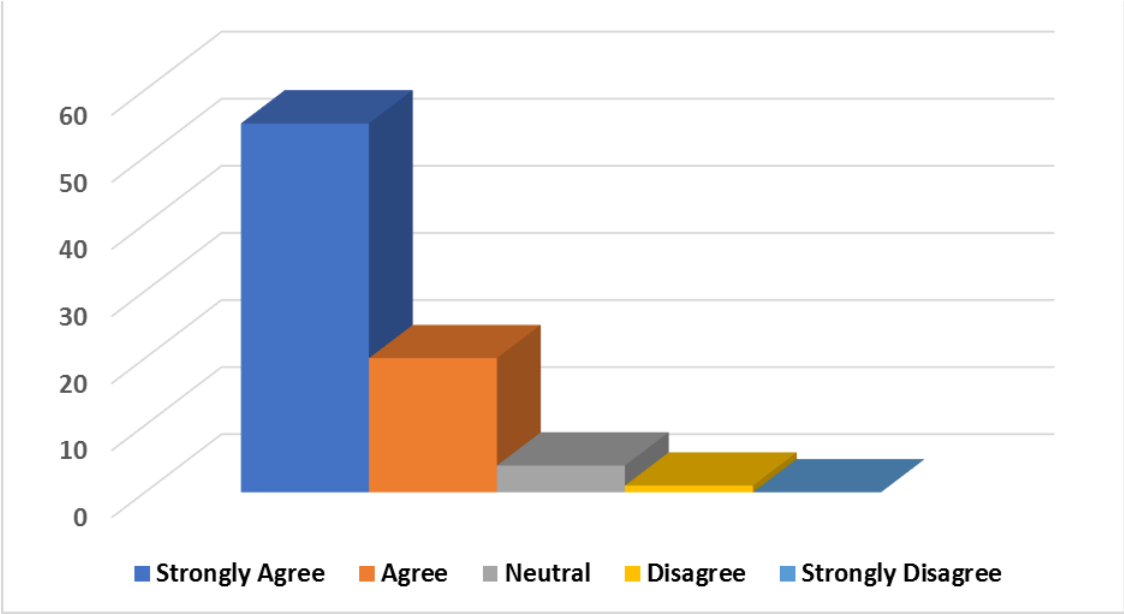

Figure 16: Survey second statement data bars

Statement three: Business frameworks impacts the performance of the teams who are using it more than impacting the final outcomes of the business.

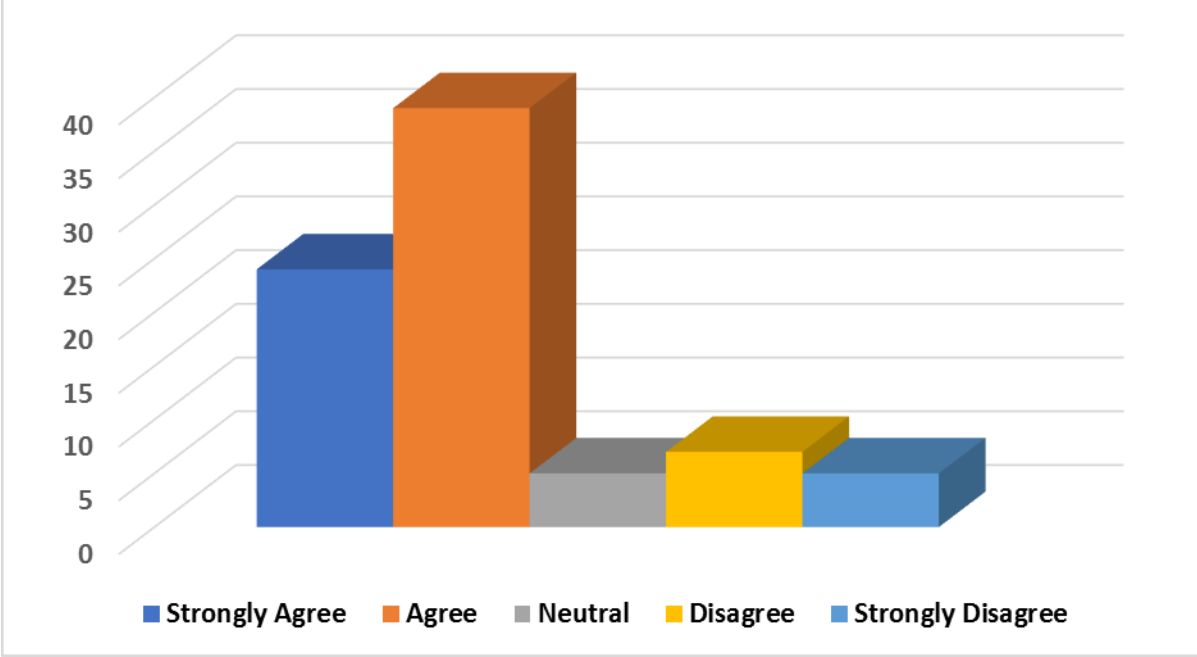

Figure 17: Survey third statement data bars

Statement four: Many companies avoid using frameworks because they believe it consumes time and effort more than when avoiding it.

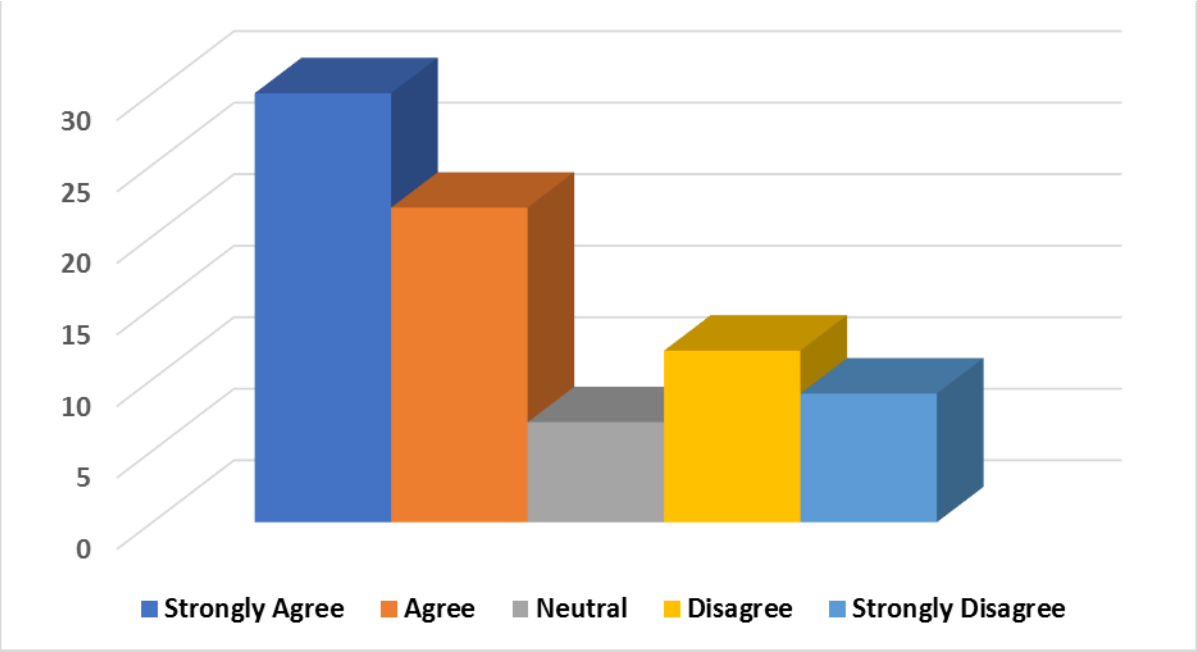

Figure 18: Survey fourth statement data bars

Statement five: A new framework that supports integration, flexibility, and universality would be a good option for companies who currently avoid using frameworks.

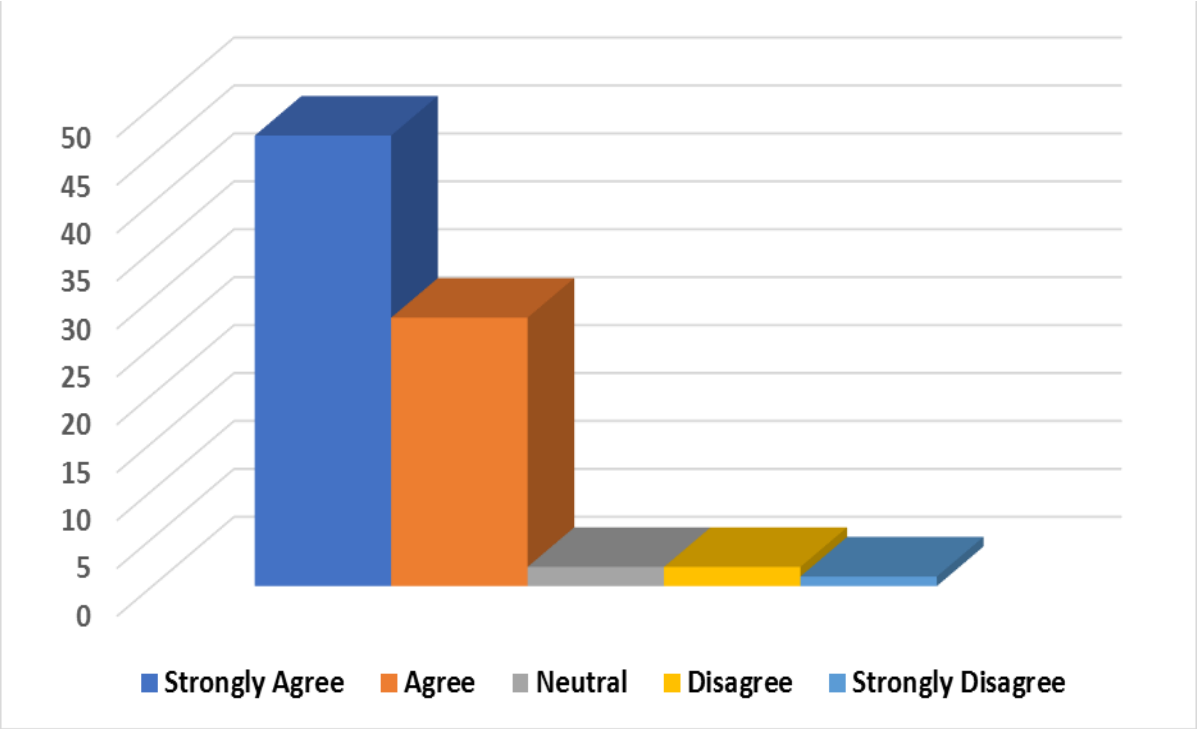

Figure 19: Survey fifth statement data bars

Below is a graph the shows the average responses for all statements.

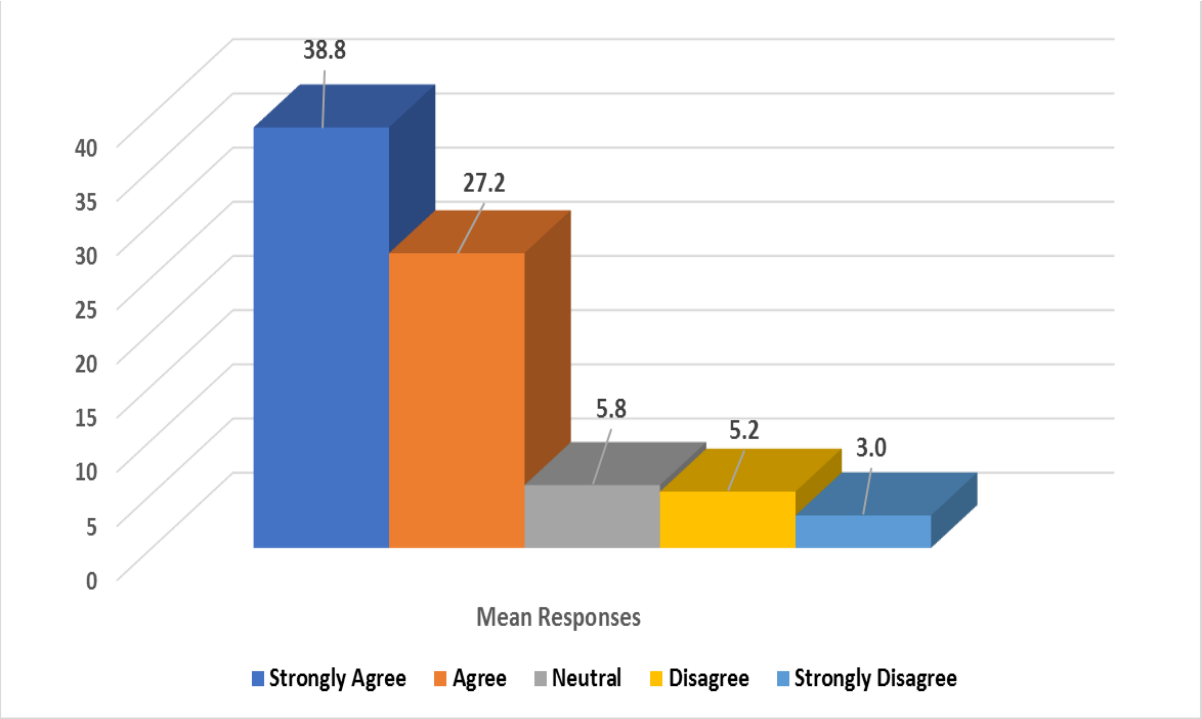

Figure 20: Survey average response data bars

4.4. Summarizing the findings

Having done a survey, an oral discussion, an observation, and seven interviews about the importance of the three concepts, innovation, project and portfolio management and the importance of using frameworks, we concluded from all the data collected several important matters.

First, in terms of the business process, project management, portfolio management, and innovation management are interrelated concepts according to the majority of the participants in the study. As per their point of view, it is crucial to ensure that the three concepts are implemented appropriately in order to survive in a highly competitive market and industry. They believe as well that the three concepts are important in order to maintain the results which ensure customer satisfaction. It is so because providing a quality that pleases customers while ensuring affordable prices is necessary in order to increase the rates of the sales. The competition is not only in quality but also in the better prices and faster services. Therefore, the three concepts should be integrated in a way to cut expenses while ensuring good quality to the customers in a shorter time. Here becomes the importance of the cooperation between the teams of different departments in order to provide quick performance and service with good quality outcomes. In addition, this collaboration is the most effective way in detecting innovative ideas among the team members because innovation is another means of competition in all markets in the globe. Customers are not merely attracted to products with affordable prices; they have become attracted to

products and services which are novel. Innovation has become a new trend in competition because many customers are attracted to trying new things or similar things with novel features. Thus, big companies are growing more and more by ensuring and maintaining innovation as a major tool to attract bigger numbers of clients.

Second, company managers and working teams consider frameworks an important element for increasing optimization and efficiency of the business process. However, most managers are interested in using frameworks to facilitate the work process and are ready to utilize them only if these frameworks provide in the practical life what they need integration, flexibility, and universality. When a framework is with such features, it allows business operations and team cooperation to move smoothly and in a clear direction. Not only do such frameworks organize the work process but also, they can be used in various contexts; this is something noteworthy for managers and companies because it reduces wasting time. Moreover, frameworks ought to ensure proper implementation of the three concepts in order to provide better final outcomes in quantity and quality.

Despite the enthusiasm of the working team and the managers for utilizing frameworks with the previously mentioned valuable features, the reality is that there are major reasons why company managers avoid using current frameworks which are available in the market. Many companies avoid using frameworks because they believe it consumes time and effort more than when avoiding it. Others claim that most of the current frameworks in the market are not flexible enough or unidimensional; however, what company managers need is to move in various directions according to the various needs of the business industry and the new changes in the market. Others argue that they avoid using frameworks because they have too many regulations and too complicated features. What they mean is that these frameworks are not user-friendly and have a lot of restricting rules which makes the work process very complex and consequently time consuming. Also, some managers commented about current frameworks that they do not give a hand for team engagement and cooperation. In other words, some of the current frameworks do not support team communication; whereas, team communication and interaction are crucial for inserting innovation and creativity as it was mentioned previously. Also, team cooperation is significant in order to identify possible future problems at an early stage, and consequently the management can avoid them or prepare a solution for them before they occur. In addition, some managers avoid using the available frameworks in the market because they are restricted to deal with one level or area rather than multiple ones. This is a worth mentioning issue because in authentic work context usually the managers and the company have to deal with issues at various levels and with numerous areas.

For all these issues that hinder company managers from using frameworks in their projects, there is a big need for developing a new framework that fulfills the requirements and the needs of the companies in order to facilitate their work and fill the gaps in other frameworks. Thus, a new framework that supports integration, flexibility, and universality would be a good option for companies who currently avoid using frameworks. Moreover, it is recommended that the new framework to be demonstrated in an orientation in order to present for the companies the framework's easiness, practicality, flexibility and usefulness. It would be a better idea to implement it in a real project and show the company that this framework can provide better results and enhanced team performance. Also, such as demonstration or implementation is a good way to encourage innovation among team members in the company; consequently, this strategy in marketing the framework will provide an opportunity for the company members to communicate better and compete together in providing innovative ideas which help the company grow and prosper.

However, it is necessary to mention the management style which is common in the company affects the company's tendency to use a new modern framework. If the company's management style is open for advancements and innovation, they more likely to adapt to new effective frameworks. However, if the company's management style is authoritarian or they could be used to a traditional management style which satisfies them, then they are not willing to try new frameworks. Thus, the management personnel mentality influences the company's readiness for improvement and change according to the data collected and observed. This is another purpose to make an orientation of how to apply the new framework in order to change some mentalities which are not inclined to try new frameworks and convince them that the new framework can be very useful for the company's growth at all aspects.

Finally, most of the participants of the study mentioned that companies, project managers and teams are ready to adapt to a new modern and innovative framework which provides flexibility, universality, and easiness in application. Thus, many project managers and working teams who want their companies to improve and their work conditions to become better are open to try better frameworks. This is so because improved frameworks facilitate the work process for the team and the managers due to increased organization and easier approach in dealing with project operations.

5. "INNOFRAME" DEVELOPMENT

This chapter shows the final look of the result of this research which is the new framework that is called "Innoframe", along with a detailed explanation about all its components and meanings.

5.1. Introduction

This is an essential chapter that highlights the roadmap for designing "Innoframe", revealing the concepts and meanings behind the parts that will be included in this framework. It has been taken into consideration that the framework shall fit well and be useful for companies with different sizes and different industries. Yet it is important to mention that this framework is basically created to fit the best, for small and medium sized businesses. These businesses usually have some kind of flexibility margins that do not exist in companies of bigger sizes, and at the same time they have other limitations that also couldn't be found in larger companies. Not to forget that the sample companies chosen for this study analysis were companies that work in the field of building materials.

The idea behind Innoframe was to base it off of a widely ranging subset of Canadian SMEs. That is in part why the 'industry' chosen is such a broad umbrella of industries in both the construction and building materials sectors. In engaging SMEs from a variety of industries, the creation of Innoframe had to take into account the differences among those companies chosen to ensure that it worked for each sector. Innoframe was therefore developed to ensure that it could be adaptable to a variety of different organizational requirements and environments. It would of course be beneficial to engage an even wider range of organizations from even more diverse industries to test Innoframe's ability to function for the needs in other industries. This requires increased time and resources however and will be something to be pursued in the future by other researchers. Based on the range of input for Innoframe however, it is believed that a useful amount of adaptability has been incorporated to allow for Innoframe's adoption by any organization. Innovation as a concept at its core is the same for all organizations but the ways in which this manifests itself will differ greatly depending on the organizational culture, its industry, and the country in which it resides.

5.2. Importance of frameworks in SMEs business cycle

Frameworks are useful tools that help businesses analyze their issues, structure thinking and communicate recommendations. Business frameworks can help articulate goals with strong business writing and develop a blueprint for success. A business can take a broader conceptual framework and scale it to fit their needs. A business framework also gives a starting place and a common vocabulary that can be edited to fit customized and defined purposes (B2Y, 2019).

In another definition, general business framework is a broad overview, outline, or skeleton of interlinked items, which supports a particular approach to a specific objective, and serves as a guide that can be modified as required, by adding or deleting items (Business Dictionary, 2019a). As a definition, this shows that frameworks are important to ensure a proper sequence of predefined consecutive actions that were set to achieve a certain goal or objective. In other words, the framework in general could be seen in a certain way as a model intended to provide a guide and develop expectations for how a business, team, or department will work to achieve the best of what they have planned in the most efficient way. Similarly, Innoframe is a framework that comes to help proper actions to occur in the right time, to ensure the best innovative portfolio is selected.

Ensuring the alignment of what should be achieved and what the framework does indeed might require several steps and thorough procedures that might even contain questions to be considered by decision-makers, action-owners, project managers, and strategy managers during the corresponding steps of the life-cycle process. Each step or question relates to one or more of the framework sections. By working on these procedures and their associates during the life-cycle process, the decision-maker, action-owner, or project manager will ensure the uniformity of the workflow with the framework.

For companies, and while deciding to employ a management technique, such as innovation or portfolio management, an attempt to implement a new strategy of organization without a plan of action has much less of a chance for success. This is where frameworks also come into play. Frameworks are important for giving structure to processes and keeping all individuals involved in initiatives, on track with the goals set by the organization (Todorović et al., 2015a).

As researchers, innovators, and industry experienced people, there are many important and critical roles that fall on the shoulders. Having this said, it is beneficial to reemphasize that this specific research and any similar study is not only designed to solve a certain problem or breakdown one business dilemma, however, it shall shape, map out, and clarify the methods, approaches, models, and frameworks used so that the whole industry, companies, and all people can use it to solve similar

problems. This is a pioneer role that shall be ensured in this research and such papers that will be published out to public.

As mentioned in a study about management consulting cases, conducted by Street of Walls, "the key frameworks should be used directly in certain case situations, but more broadly they should be used as a way to expand your strategic thinking, which is the critical component of success in the case study interview process" (Street of Walls, 2019). This comes to highlight a good point that supports the main logic behind using the frameworks in business. Frameworks might be developed and used to resolve certain and specific case, and at the same time they are used to improve the overall understanding or application of processes in a business.

At the core of mostly all businesses, there are very critical questions addressed frequently by managers to themselves, how do we sustainably ensure the highest value of our processes, operations, and decisions? How can we sustainably ensure that we are not stuck into a routine loop that will lead us eventually out of the market? How can we enforce innovation into all what we do? At this point of thinking, answers vary in time and type. Running away from answering these questions means a fear from changing what they do, the way they do, which in turn means remaining in the same loop that represents the routine inside companies and eventually losing any competitive advantage over competitors. On the other hand, answering the questions might come in many forms, one of it is the form of designing targeted models or frameworks that are used to enhance, control, and optimize a set of functions, processes, or operations.

Tim Kastelle has highlighted in his blog that in a special issue of the journal Long Range Planning, Charles Baden-Fuller and Mary Morgan say that business models can serve three different purposes. They can describe different kinds and types of businesses. This is critical if we are trying to study them analytically. They can be shorthand descriptions of how firms operate – the primary value here is that you can use the business model to ensure that you have strategic fit across activities. Or they can be role models – you can use them to describe how you want your organization to function. This quote was particularly mentioned to differentiate between models that shape the whole company's way of work and other frameworks (or might be called models as well) that shape how certain process or set of processes could be enhanced, controlled, and optimized within the company. These are two different meanings that could lead to different analysis and accordingly different results. This research will address the second meaning where it will address several problems to come up with a specific framework that merges portfolio management with innovation management at the same time.

In business, one can find literally tens of frameworks out there ready to be used. Some are considered simple to understand and simple to use, where others are classified as extremely complicated to apply, especially by micro, small, and medium sized businesses. Yet the good question that one has to ask is why using a framework is important for my business? One of the main reasons is to help keep your processes and operations focused on achieving your predefined objectives in the best way.

An essential part of choosing or fitting the best framework for a certain department inside the company is what does this framework reflects about the designed plan. Using the framework as a tool will help define how would the company achieve the set of objectives? Yet before all of that, the plan that defines what you are trying to achieve should be crystal clear. The framework also helps one understand the main strengths and weaknesses of these operations and processes. These are some essential factors that direct heavily the selection of the framework.

Another benefit to implementing the framework is helping the team and all engaged personnel to better understand the approach to achieving the goals of their tasks or department, which means in other words, help those people better understand the importance of achieving their objectives in the simpler and most optimized ways and how could this positively affect the performance, results, and overall metrics of the company.

In addition, the framework that one implements inside a business drives a big concentration on constantly improving, growing, and finding new future streams and lines for a certain area or for the whole business. Many organizations become stuck on driving their current lines of business. This might be good for the short-term; however, the lack of innovation and diversity causes significant risk to the business from changes that are happening in the market, customer trends or competitive activities.

Frameworks do mainly work on maintaining three main matters, streamlining, optimizing, and controlling the process. It gives more focus to the work, when it is well applied, leading to a quicker and truly focused excel in one line or many lines of the business, and thus maximizing resources and minimizing distractions.

Moreover, frameworks, if designed in a certain way, can give flexibility for a business in a way of giving this business the ability to navigate into new and wide range of lines, industries, and products. If a business is by concept already firmly in only one discipline or one area, then a framework could – under certain circumstances and in certain situations – allow it to add value by controlling other disciplines and thus gaining additional competitive advantage over time.

Frameworks can be used also to improve the flows of information and work throughout the organization. By using a framework that helps to make organizational processes more 'lean', companies can benefit from lowered costs and improved time-usage, among other things. They also help achieve goals through providing a structured system for achieving tasks.

Last but not least, having a good business framework should play a vital and essential role in guiding teams to gain better understanding of their general and even technical roles. This could happen if the framework has the right characteristics that address in a clear way the steps of achieving the goals and objectives of using it. This role – when exists – can smoothly help in the process of identifying opportunities and filling gaps for improvements within the whole process.

While this list is not comprehensive of every portfolio and innovation framework that is in existence, it provides some useful insight into the types of frameworks that are being used, and the extent of success that they are seeing. It also provides an understanding into the variability that exists with the frameworks that have been developed, which is especially important for Small and Medium sized Enterprises (SMEs) which may find that not every framework works well for them, due to the differing organizational structuring and cultures that exist in these organizations (Murphy & Ledwith, 2007; Snider et al., 2009).

Ending up this section, it shall be mentioned that on the way to set up Innoframe, there will be several factors, matters, and associated items - listed or neglected above - covered in order to better understand the concept of the new design and the usage of it.

5.3. Framework development

This chapter presents Innoframe, a new business framework for small and medium Canadian firms dealing in the construction and building materials industry. This framework was developed with the purpose of guiding these companies through three areas: project management, portfolio management and innovation management. The framework is a tool that will ensure that these firms manage their projects in line with their portfolio strategy, while maintaining a high level of innovation.

5.3.1. Business frameworks

A business framework is a crucial tool in shaping the core of a corporation. The organization and management structure of a corporation are founded on the business framework and so it is crucial that the roadmap for building said framework should be followed to the latter. Aguilar-Savén (2004) details a

comprehensive process on how to develop an inclusive and effective business framework. Before developing a business framework, it is crucial to identify the owner of the framework. Having an industry specific framework is crucial in that it enables the developers to come up with a more customized and highly effective framework. The second step involves studying the range of projects involved in that industry. This research will enable the developer to design a framework that is not only adaptable to all the projects but also supports the success of all the projects involved. Third, the developer has to establish the level of governance for the framework. For instance, project management will most probably involve junior executives and officers, while portfolio management will involve the top leadership. Even so, there are projects whose management will require more input from the top leadership and so it is crucial for the developer to set these parameters.

The second phase of framework development begins with creating a pipeline. A pipeline is important in that it outlines the path that a project should follow. During the creation of the pipeline, most developers would prefer to develop key documents or templates such as requisition forms or concept notes that will be needed at each stage, for instance, considering the first step of a project is conceptualization, developers may propose a draft concept note. The following stage may be budgetary allocation, here there may be a separate budget approval template that would accompany the concept note for approval. This basically eases the work for the project teams. After the creation of the pipeline, framework developers then define what the parameters of each phase of the framework would be, and how performance would be managed. While one may assume that it is the last step, it is also the developer's duty to take the client through business framework and empower them on it, get new ideas and include the more feasible ones. The last phase of any framework development is actually the trial phase where the organization uses the framework for a trial project and evaluates how workable it is.

There are several factors to consider when building a business framework. According to Müller (2017), the first question that should be asked is, what would be the theoretical foundation of the framework? If the framework is a multidimensional one outlined in this paper, then what will the different phases or stages entail. The second factor would be the prerequisites in terms of the values that the framework would hold. For instance, while some frameworks would put strict emphasis on agility and flexibility, others would put more emphasis on processes and operations, while some frameworks would want all those values in it. So, while developing a business framework, it is important to work hand in hand with industry stakeholders in order to understand which values they best prefer (Aarntzen, 2016). The third factor to consider is how performance will be managed in the framework. Developers should ask themselves 'How can the firm evaluate the performance of projects undertaken within this framework?'

According to Bonghez and Grigoroiu (2013) performance management is important for two reasons. First, it enables the project team to evaluate themselves thereby helping them point out areas of weakness. Second, it also points the organization to any areas of weakness in order for them to come up with remedies, such as building the capacity of their project teams on those areas.

Aside from the factors to consider while building a business framework, there are certain aspects of essential value. First and foremost, the framework development process should be highly interactive. It is important for both developers and firms to understand that this framework belongs to the firms and not the developers. For that reason, it is crucial for developers to be open to engagement, receive criticism and recommendations from firms and to the best extent possible, integrate the recommendations to the frameworks. This also means that developers need to empower the firms in order to enable them better to understand the framework and how to use it. This engagement should not be limited to top management. All members of the firm that are involved in projects need empowerment on how and why to use the frameworks.

Second, it is important to emphasize that the corporate world is always changing (Quora, 2018). What is news right now, may be forgotten in the next minute and consumers are the people that drive these news. Therefore, even while engaging firms, it is important to engage other stakeholders such as the shareholders and consumers during the development process. At the end of the day, they are the biggest beneficiaries of the projects and for that reason, having a say in how projects that affect them should be undertaken is the least consideration that can be made. In addition to that, considering the fact that the public controls how the business world moves, they may be in a better place to propose innovative solutions to include within the business framework that will give the projects undertaken within them an edge.

Last but not least, agility is key. Just as the business framework emphasizes on agility and flexibility during project management, agility and flexibility should also be a concern during framework development (Manfredsson, Göbel, & Torstensson, 2014). While the developers may have a vision of what the framework should be, it may not necessarily be the vision of the industry or the firm. It is therefore important that the developers maintain an open mind and be conscious of the need to accept changes.

5.3.2. "Innoframe" concepts, components and usage

- Foundation of development

While carrying out the study for this project, it has been identified that there are several other frameworks that businesses could use. However, the study revealed that businesses rarely use them due to many reasons. First, the majority of the existing frameworks are unidimensional. They either deal with project, portfolio or innovation management. The implication herein is that businesses often have to combine different frameworks that deal with each of those aspects. The development of unidimensional business frameworks was by design.

Agility and adaptability are core aspects of any corporation. The business world is constantly changing and advancing and for that reason, everything that goes with these corporations need to adapt to these changes (Cleden, 2017). For instance, according to Batra (2017), project and team management is slowly embracing the agile manifesto, which requires projects first of all focus on consumer satisfaction and cooperation between stakeholders. Where there exist such principles, it is obvious that feedback is bound to be received and this then requires projects or businesses to incorporate the feedback and align it to the existing plans. In addition to that, business requirements keep emerging and evolving. However, the need for analysis is an inevitable aspect of life in general. This is further exacerbated by the fact that as internal processes to develop business are ongoing, external conditions are ever changing and the final product needs to be alive to and adapt to the new conditions. Innoframe was conceived to be a framework that ensures that the process is consumer oriented, team-work oriented, flexible and able to adapt to the changes of external conditions (Booth, 2017). Existing frameworks could be described as rigid and not flexible at best. Innoframe however provides flexibility and teamwork due to the fact that it contains open statements that requires intensive contribution of the teams. For instance, some statements that are included in Innoframe are designed specifically to ensure that all stakeholders are engaged and fully in support of the project. In addition to that, Innoframe was designed to allow for the alteration or modification of the statements without necessarily having to alter the scoring model. For that reason, it is safe to say that Innoframe was built to be both cognizant of the agile manifesto principles and the ever-changing business world.

Stakeholder engagement is an important aspect of any undertaking. So important it is, that even the government has to take in public comments and memoranda when coming up with new regulations, laws or policies. The same applies to the corporate world. Turner (2016) avers that in project management, it is important to take in, evaluate and incorporate the views of the project team and

management all together. This calls for robust engagement and open communications. Turkulainen, Aaltonen and Lohikoski (2015) aver that communication is crucial in project management for several reasons. First, it facilitates the relaying and receipt of information. Project managers have the responsibility to ensure that his team, managers and other stakeholders are informed on their responsibilities, what is expected of them, their role and any hindrances that may affect the project. In addition to that, by receiving information, all relevant stakeholders can execute their duties and relay any suggestions or concerns they may have. Secondly, communication also enables all the stakeholders, including the project manager, relay any changes in conditions or situations to each other. This way, all parties are apprised and if there is the need to adjust expectations, duties, responsibilities of needs, it is effectively done in a timely manner. Third, communication allows for the discussion of problems in that any party can relay information regarding a perceived problem and the concerned stakeholder will do what they can to assuage that condition. Finally, and most importantly, it is crucial that all concerned parties understand the benefits of any undertaking. Language possess many challenges in that some stakeholders may not be aware of the jargon that technical experts use, and communication enables these parties understand one another. Through communication, experts can explain to stakeholders that which they are undertaking, its long-term goal, the benefits that will be accrued and how concerned parties can contribute to the success. From the above, it is clear that interaction and engagement, especially through communication, is crucial to the success of any undertaking. However, most of the existing frameworks lack this aspect. In so doing, the project's undertakings are usually not properly communicated, and feedback received. Projects may be carried out or portfolios managed without other stakeholders properly understanding its impact on the success of the business. This also affects how well they execute their responsibilities. In the long run, businesses fail. Innoframe contains open statements that require the input of more than one party and thus supporting engagement and communication. It brings together the entire team and could potentially bring different departments together for the purpose of discussing and analyzing anything pertaining to the activity. However, engaging a wider scope within Innoframe, such as the stakeholders, was outside of the scope in the present study which presents a weakness to the Innoframe model. Including the stakeholders would allow for input from the end users of the project, providing valuable insight to the functioning of the project, and the development of the portfolio. This will be taken into account and presents an opportunity for other researchers in the future to improve upon the Innoframe model.

Warner (2012) poses a question regarding the place of creativity and innovation in project management. This question comes in light of the fact that the official project management body of knowledge, the 'PMBOK' (Project Management Body of Knowledge) guide does not have any chapter dedicated to creativity nor innovation. However, in order for one to advance their career in the business world and in project management, there is a great need for them to stand out from the masses. Creativity and innovation are what can accelerate one's career growth and set them apart from other professionals. One would ask how exactly creativity and innovation could fit into project management or business frameworks and linking these aspects has been the biggest challenge. Most of the existing frameworks do not emphasize on innovation and creativity and this has led to the locking out of these two aspects in project management. However, research done has concluded that as much as creativity or innovation may be difficult to achieve in the project itself, it is possible that they are merged into other support functions of the activity. For instance, professionals can use creativity or innovation to establish means of effectively communicating with other stakeholders. Creativity and innovation can also play a great role in team motivation, considering it is crucial to maintain motivation within the team and celebrate good work. Innoframe not only embraces creativity & innovation, it also has statements that force and push the user to embrace them. This factor enhances the suitability of Innoframe over other frameworks.

Conceptualization of a project is important. It enables all involved understand what is happening, what is expected of them and what is the expected result. However, the most important factor in ensuring success is clarity. According to Carvalho, Patah and Bido (2015), clarity is gained through several methods, evaluation and scoring. Evaluation enables users gauge to what extent the statements reflect the status of the project. The same applies to scoring. Through scoring, one turns conceptual data into numerical data, thereby enabling the interpretation of the progress made. Existing business frameworks are strictly conceptual. For that reason, they do not numericize concepts. One of building foundations that Innoframe has relied on is the numerical scoring factor. It is integrated in a way that enables users evaluate success, thereby gaining more clarity on the whole picture.

There are two levels of project implementation. The operational level and the strategic level (Kerzner, 2017). The strategic level deals with the formulation of strategy while the operational level deals with the implementation of the strategy developed. Key in any project is that both levels have to be synergized and work in tandem in order to ensure that the project runs seamlessly. Research conducted in the course of this study revealed that most of the existing frameworks are specific in the sense that they can only be used at an operational level or strategic level. Any attempt to use a

framework meant for one level on another level would be catastrophic. However, to ensure seamless project management, it is important to optimize operational processes and align the projects with portfolio strategies.

Below is a quick highlight on what should organizations expect when deciding on adopting Innoframe. Utilizing Innoframe in an organization would help in several ways:

- Better engagement between individuals, teams and departments;
- Smoother and faster decision-making process in regard to a certain context;
- Provides one route/tool that can replace several ones;
- Supports agility and helps in maintaining facilitation;
- Helps in better balanced portfolios.

The main difficulties that would face organizations when adopting Innoframe:

- Rerouting. Changing a certain managerial path that has been used to a new one;
- Adaptability that might consume extra time in the beginning;
- Lack of proper planning to introduce the new framework;
- Lack of consensus within the organization;
- Failing to communicate the approach.

Next, the components of Innoframe will be presented.

- The pipeline

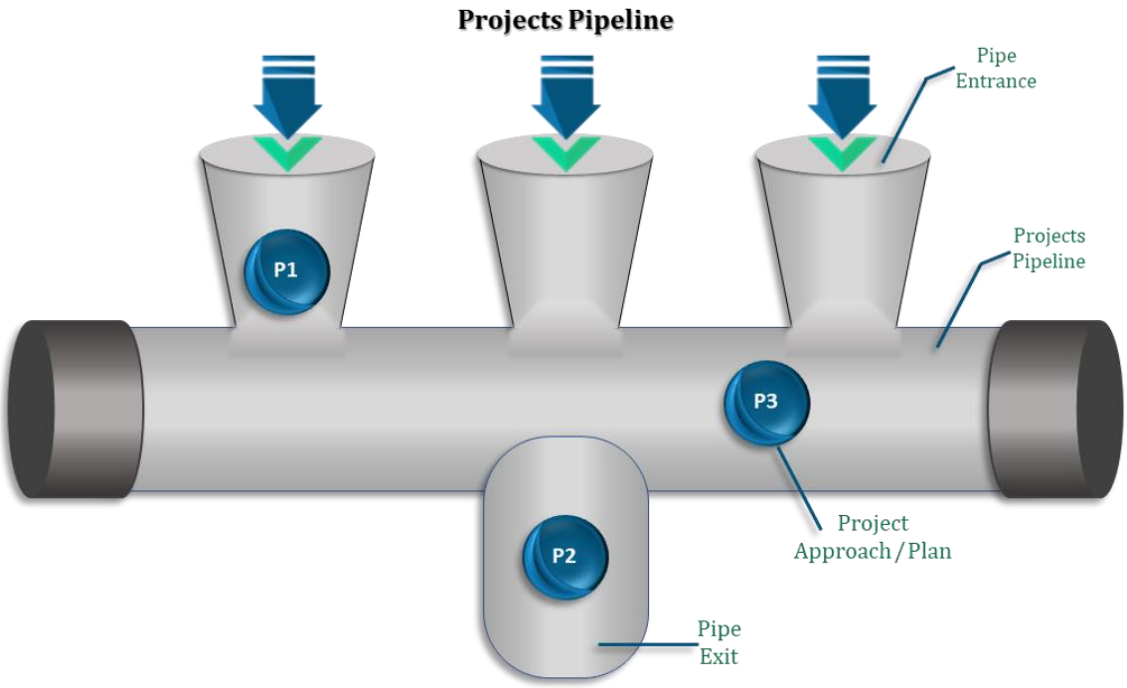

Figure 21: Innoframe - The pipeline

The first part of Innoframe is the project pipeline. The pipeline as shown in the above diagram has several entrances to picture the reality that project plans come from several departments and get escalated to the management for final discussion and approval. What enters in the pipeline is the suggested project plan that needs discussion and final approval. The plan is already prepared by the assigned project manager, yet it needs to be reviewed and approved. And this explains why the pipeline has only one exit, meaning that the management will receive the suggested plans from several teams or departments, and they will have all to be reviewed and approved by the top management before moving into application and action. The main importance of using the pipeline is to represent the concept of streamlining the projects through one defined route. This is because all corporations need to have a standard single route that their projects pass so that they are easily accessible for discussion by all stakeholders (Verzuh, 2015). The project pipeline is an important aspect of project management for many reasons and failure to use it carries a lot of risk. The most important value of using a project pipeline is that it details a clear path that projects should follow. According to Turner (2016) a project plan is the detailed and conceptualized plan explicitly detailing the project approach. It is also a clearly explained plan that discusses all the details of the project in a way that the involved entities fully understand. The written project plan or approach is basically the communicator of the project. Through this path, important aspects of the project are checked to monitor and control quality. A robust and efficient project pipeline also ensures that projects are completed on time, avoiding backlogs and

clogging of the pipeline (Izmailov, Korneva, & Kozhemiakin, 2016). Sometimes, even with the most efficient project managers with the best teams, corporations experience delays in getting their projects completed. Other times, corporations experience success when they only have a few projects going through the pipeline but experience extreme inefficiencies when more projects are added. This fact reiterates the importance of having a robust and efficient pipeline because through it, firms will be in much better positions to efficiently and in a timely manner, handle all their backlog.

The risks of failing to have or utilize a project pipeline are vastly outlined by several researchers. First of all, and basically speaking, a project pipeline represents organization. When an institution fails to have a project pipeline in place, it runs the risk of failing to organize the project plan. For that reason, essential personal who should be involved in the project approach or project plan may fail to get involved and this is bound to result in some serious missteps. The second risk of not following a project pipeline is there may be a possibility of resource mismanagement. Some of the most vital departments within the project pipeline are the finance and procurement departments. These departments determine whether the institution has enough resources to carry out the project. A poorly defined or the lack of a project pipeline may result in the skipping of these departments and the end result is that a project may flop due to a failure to consider resource capabilities before initiating the project.

Innoframe's project pipeline contains two essential elements. The project entrance and project exit. The project entrance is the first point at which the institution or firm interacts with the project. This may be the person that initiates the project, or the project manager that is assigned to ensure that the project is following the right path. The pipeline exit, on the other hand, represents the beginning of another phase of the route. The exit symbolized that the project has moved through its initial phase and all the requisite departments and individuals have evaluated the plan and to the phase where they are required to discuss and conduct scoring for each concept.

As stated initially, the project pipeline represents the path that a project should follow. In the real world, this could take many forms. It may be the different departments who need to look into the plan of this project and consider approval or recommend any changes. In other instances, it may be the different individual's whose input is crucial to the project. As succinctly put by Converse (2013), the project pipeline includes the employees, resources, and the business framework used by a corporation. It is important to note that the different departments or individuals in the project pipeline are essential personnel which means that without them, or in the event that there is a shortage of such people within the organization, project delays will be an ongoing problem. In that line Gaskin (2017), suggests the

best ways to utilize the project pipeline essentially by balancing it. Firms are required to balance the pipeline in such a manner that all critical aspects of the project are properly handled. Gaskin goes ahead to posit that balancing a project pipeline entails several factors such as efficient use of both human and other resources, cashflow management, engagement with clients or other stakeholder, awareness and planning of future projects. In order to efficiently balance Innoframe's project pipeline, project managers have an opportunity to utilize the above means to ensure the success of their projects. First of all, managers will be required to thoroughly evaluate their resources in order to identify the firm's capability to handle projects and in extension, the pipeline's capability. It is important to note that the pipeline is only as efficient as the teams managing it and the capacity of the team. Project managers need to know what resources they have at their disposal so that they can know how well to queue projects more efficiently. By evaluating their resources, managers will also know what limitations they have and thus plan on how to do away with the limitations.

All in all, the pipeline is the initial contact of a project into the Innoframe model, where what enters first comes out first. What enters into the pipe initially is the project plan that has been accepted by the company but is needing analysis from the team. This becomes useful particularly when multiple projects are being performed at once. The pipeline represents that projects are coming into the framework to be assessed and ranked later on in the process on importance with respect to other projects. This can help determine the value that each project will have and its priority within the organization. The pipeline in the real world could be a system, a conference room, or an approach that the team uses to store and access the project plan for assessment. All projects will be accepted into the pipeline for assessment and move forward through all phases. The pipeline itself does not rank the projects. This occurs in the later phases of the Innoframe model where a grade is given and displayed in the matrix for comparison against other projects that entered the pipeline.

- Phase I: project management

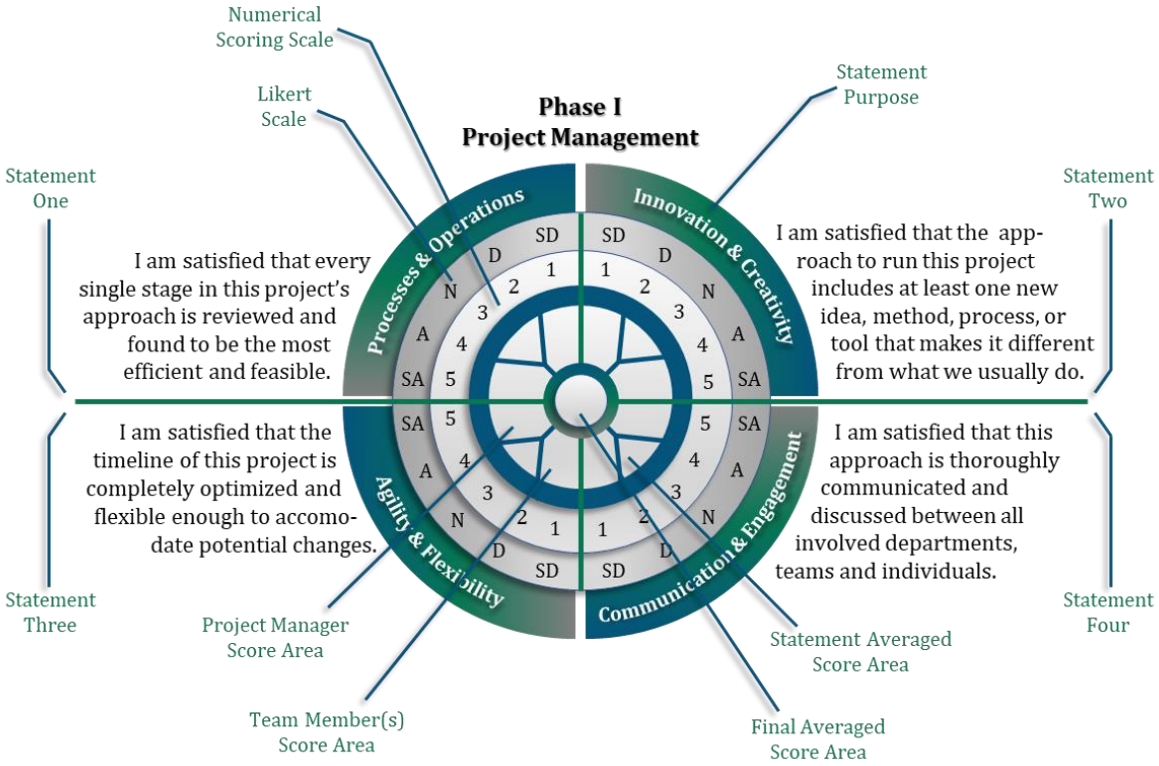

Figure 22: Innoframe - Phase I

Phase I of Innoframe business framework is the project management phase. Phase I is the main phase of the business framework. Most firms fail to understand the essence or importance of the project management phase because according to them, it is a waste of resources. According to Burke (2013), corporations and government organizations alike have the view that project management is an unnecessary overhead because they believe that project manager do not really deliver anything and most importantly, they just get in the way of the organization's modus operandi. However, time and time again, it has been proven that running projects without having the necessary project management is a 'false economy' (Aston, 2017). Aston further posits that project management is not only about timely delivery and considering the budget and scope, it is also important in uniting all the stakeholders of the project, creating a vision for the project and ensuring communication to all the relevant stakeholders of the project. Essentially, project management transcends delivery. Its impact causes a ripple effect that positively affects all the stakeholders involved.

Next the importance of Phase I - Project Management, will be presented.

- Alignment of the operations to strategy

Strategic alignment entails aligning the project being delivered to the firm's overall strategy. Project management is an essential part of business because it ensures that whatever is being delivered is the right objects and has value (Harrison & Lock, 2017). Every corporation has strategic goals and various projects are used to advance these goals. Project management ensures that during the architecture of the project, there is diligence that aims to ensure that projects fit within the boundaries of the firm's strategic framework. This is done cognizant to the fact that risks are inevitable, and they may result in the changing of the business model or strategy. In this situation, project management ensures that as the organization realigns to the new strategies, the project also realigns and is in conformity with the new strategic goals. Additionally, project management also ensures that in the event projects veer of the course of the strategic goals, they are quickly realigned, and this saves the organization unnecessary costs.

- Direction

Project management ensures that there is leadership and in extension, a sense of direction in the projects. Aston (2017) analogizes that without project management, a project team is like a ship without a rudder. This means that there will be no sense of direction, control or purpose. This phase not only provides direction through leadership, it also provides motivation and inspiration for team members alongside direction on how to manage roadblocks along the way. In line with provision of direction, project management also provides direction in terms of accountability. A project manager ensures that there are clear set boundaries and a chain of command. This way, the manager can enforce the projects processes and keep everyone accountable.

- Planning management

The third importance of Phase I of project management is that it ensures that planning is well managed. Firms that do not pay attention to project management often have their teams work by themselves. As a result, these teams often work without briefs and this leads to a lack of focus. Lack of planning mostly leaves teams with vague objectives and without a clear direction as to what is required of them and why it is required. Through project management a team leader effectively plans the team to accomplish tasks by breaking down the project into deliverables and assigning the deliverable to each team member.

Managing planning in project management also ensures that risks are identified and dealt with as quickly as they arise. Unfortunately, a common feature of projects is that risks often have the

capabilities of changing the goals of a project. By executing the project in iterations, the project manager and his team have the opportunity to swiftly rearrange responsibilities but maintain the focus on the objectives of the new goals.

Planning also entails ensuring that the project operates within the boundaries of the team's resource capabilities. Without proper project management, the goals and objectives of the project may be so overambitious, that they exceed the resource capabilities at hand. This brings in complications that may lead to delayed delivery and over expenditure. Project management ensures that reasonable objectives and goals with achievable deadlines are set and that all these aspects consider the resource capabilities at hand. Planning through project management also ensures that unless under the most extreme situations, the project manager does not pressure his team, with urgent deadlines, which may in turn compromise the quality of the outcome.

- Quality control

Every project is undertaken with clear expectations from each stakeholder. While the expectations may be different, there is a standard that is maintained. All stakeholder expect that whatever is being delivered is of good quality. Without Phase I of Innoframe, resources could be underbudgeted for, tasks underestimated, and schedules rushed. In the long run, the output is bound to be poor (Mantel, Meredith, Shafer, & Sutton, 2016). Through project management, and the staggered project delivery phases, project will have sufficient time and resources to deliver on the projects.

- Risk management

One of the most essential aspects of Phase I is risk management. It is critical for the success of a project. While most firms prefer not to address the possibility of a risk and what to do in the eventuality of one, risks are part and parcel of a project and they have the potential of derailing the project. Risk management as outlined by the PMI (2017a) entails the identification, management and mitigation of risk. Through utilizing Phase I of Innoframe, mangers can carefully analyze potential risks to the project, evaluate them, come up with a plan for mitigation and even come up with a contingency in the event that a risk actually materialized. Project management also ensures that the risks are listed according to the likelihood of occurrence.

- Explaining the four statements

Phase I of Innoframe works to ensure that four key concepts of project management are integrated and maintained. The four concepts are: Processes & Operations, Innovations & Creativity, Agility & Flexibility

and Communications & Engagement. Each of these statements serve a specific purpose, but the purpose goes beyond integrating the project management concept into the project and evaluating how well the strategy is integrated. The statements also serve the purpose to provoke discussions, centered on the concept, between the project manager and his team and within the team itself. One may ask what the importance of these discussions are. First of all, discussions centered on the project management concepts ensure that the entire team and the project manager are on one page with regards to what is required from each and every one of them. One of the factors that support project management, which was highlighted in the previous section of the assignment, was direction. These discussions ensure that the team has a sense of direction and enable each member to maintain focus on the objectives of the project. Secondly, such discussions enable each of the team members to air their opinions and whatever challenges they are facing or will face in the course of executing these projects. Airing of these opinions and challenges triggers the team to think outside the box to adopt innovative solutions that will play a role in ensuring the success of the project. Phase I's statement also work to trigger discussions and meetings among the different management levels. Aside from internal team meetings, it is also important to have interdepartmental meetings, and meetings between project manager and top management. Such meetings are important, especially if each of those entities are part of the project pipeline. This way, the meetings will trigger discussion around how to align the project with each department, thereby eradicating the eventuality of clogging the pipeline. Secondly, the meetings between the project manager and top management facilitates strategic alignment, ensuring that the project's objectives are aligned with the company's strategic goals. In addition to that, such meetings ensure that in the event of strategic shifts, the project manager is informed at the first instance, making it easier for a smooth transition and realignment of the project to the new strategy. Clearly, these statements perform an important duty with regards to how well the project is executed. The next section will discuss Phase I based on its conceptual statements.

- Statement One: I am satisfied that every single stage in this project's approach is reviewed and found to be the most efficient and feasible.

This statement is adopted to ensure that the processes and operations are optimized and efficient. Optimization of processes has the main goal of making them more efficient. Efficient processes then translate into better project execution. While it is clear that business processes should be optimized, there is generally no agreed upon mode of optimizing project processes. Meyer (2006) however avers that optimization of project processes should focus on the management of cross functional processes. In particular, this involves ensuring that monitoring and evaluation is done on a continuous basis, there

is innovation in every stage and that there are agreed quality measurement endeavors, such as cost, quality and cycle time evaluation. It is also important to note that while carrying out optimization to enhance efficiency, it is crucial not to compromise efficiency for quality. One of the biggest advantages of optimizing processes is that it enhances cost saving. However, cost saving may also impede the quality of the project's outcome. It is crucial to note that to the stakeholders, what is of utmost concern is the quality of the outcome, be it a product, service or report and that should be a bigger priority than any optimization.

There are several reasons why this statement is important. First of all, optimization of processes ensures that the project utilizes the resources at hand, therefore ensuring a cost-saving value to the process. Inefficiencies in project processes more often than not require the dedication of more resources, which ultimately results in the project being overbudget. In addition to that, process optimization ensures that better performance is realized. This is because all the processes are streamlines in such a manner that when the business approach or plan is introduced into the pipeline, all departments and individuals involved work like a well-oiled machine, and this significantly improves performance. The second benefit of project process optimization is the sustainable benefits accrued by the outcome of the project. Through enhancing efficiency, the outcomes of the project are bound to continue producing value, long after the project has been concluded (PMI, 2016).

- Statement two: I am satisfied that the approach to run this project includes at least one new idea, method, process or tool that makes it different from what we usually do.

Statement 2 was adopted with the purpose of ensuring that the approach of the project includes innovation and creativity. As indicated earlier, innovation and creativity have often been viewed as foreign concepts when it comes to project management. Stanleigh (2014) attributes this to the assumption that while projects are initiated and executed in a well-planned and thought out a world of certainty, innovation exist in a totally different sphere of uncertainty. Contemporary project management professionals have however proven time and time again that project management and innovation can be combined to produce superior and better-quality outcomes. The importance of having this statement cannot be overstated.

First of all, it is important to differentiate between innovation and creativity. While the terms are often used interchangeably, they have different meanings. Creativity entails the conception of an idea by an individual. Innovation, on the other hand, is the realization of the idea by essentially making the idea a

reality. For the purposes of project management, while creativity is important, innovation is more important because it actualizes the ideas into reality.

Earlier on in this thesis, the importance of innovation was discussed. What stands out, however, is the fact that creativity and innovation maximize on the use of every team members talents (Saladis, 2009). This is because the new idea generated by creativity and the innovation process will require the input of every team member in order to ensure that the best results are achieved. Secondly, creativity and innovation improve on efficiency in that the ideas created and implemented are mostly initiated with the purpose of making work easier (Warner, 2012). Most of those ideas are inclined upon how best to maximize outcomes, while generating better value for resources. Innovation and creativity also enhance strategic alignment because it triggers the thought process on how best to align project processes and outcomes to strategic goals. In some instances, strategic fit is difficult to achieve because of the complexity of the strategic goals (Gallagher, 2015). However, by promoting innovation, project managers are in a better position to achieve strategic alignment.

- Statement three: I am satisfied that the timeline of this project is completely optimized and flexible enough to accommodate potential changes.

The agile manifesto has taken over project management as discussed earlier on, and the results have been phenomenal. This statement ensures that the project process is agile and flexible. This thesis has addressed challenges brought forth by strategic shift and change in external environment. Both of these are risks that are bound to affect project management. For that reason, it is important to accept that while internal project activities may be ongoing, external conditions may change, and that is a big risk, especially in the current business world where things move at breakneck speed. In addition to that, the agile manifesto also promotes stakeholder engagement as the key to project success (Layton & Ostermiller, 2017). In this digital era, consumers and stakeholders alike have instant access to news, trends and information. They have data on their fingertips, and they are the best resource a project may have. Making sure that they are involved in the process will ensure that their valued input is considered and integrated.

- Statement four: I am satisfied that this approach is thoroughly communicated and discussed between all involved departments, teams and individuals.

A common similarity in all the statements of Phase I is that they require engagement or communication from different levels. Statement four ensures that there is good communications and engagement among all the involved parties. While hard skills such as skillful planning and resource management are

often considered as the most important aspects of project management, the effective utilization of soft skills, like communication and engagement of stakeholders, also has a bearing on the success of the project (Carvalho & Rabechini, 2015). In order to see projects, succeed, project managers and their teams must build connections with their stakeholders and engage them on all levels. Communication and engagement also enable project managers gain useful insight from all teams involved. Most importantly, communication facilitates a project team with the platform to become the trusted advisors of all stakeholders involved and top management (Binder, 2007). This will ensure that all stakeholders are not only committed to the project but are also kept apprised of any developments. This then imposes a duty to project managers and their teams to exercise honesty in all aspects of their engagement with stakeholders. Having a trustworthy relationship also works miracles for project's success and this means that the project managers, during their engagement and communication, cannot play the 'no bad news' card. In order to establish trust, which facilitates communication, project managers need to ensure that stakeholders are not blindsided or surprised by problems within the project.

- Phase II: portfolio management

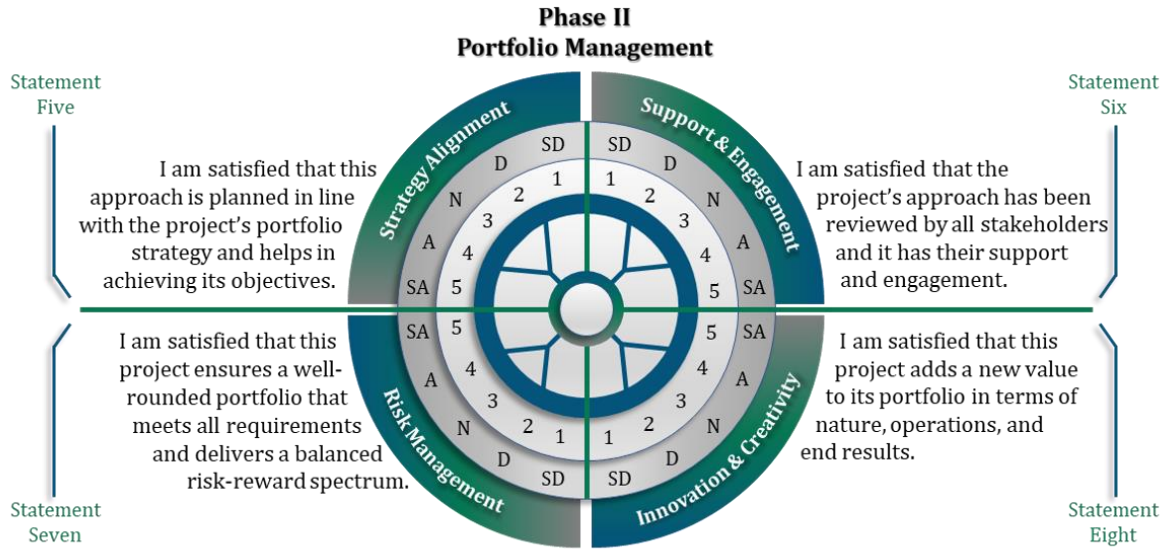

Figure 23: Innoframe - Phase II

Phase II of Innoframe is the portfolio management phase. Portfolio management is a cyclical process that ensures projects within the portfolio are aligned with the organization's strategic goals and return on investment expectations. There are many reasons as to why firms should inculcate this phase into their business framework, however, the most important reason is that it ensures that organizations can determine the best resource mix required to deliver on the projects and to effect activity scheduling in a

manner that will best achieve the organization's goals. The difference between project management and portfolio management is that portfolio management entails the management of projects and project processes from a high-level perspective (Harrison & Lock, 2017). Over and above strategic alignment, portfolio management also entails prioritization of projects, staffing of the projects with qualified personnel, monitoring and evaluation and finally communication to all parties involved.

There are several risks associated with the failure to carry out portfolio management. First of all, without portfolio management, the firm may run into a situation whereby the project teams are implementing too many projects which are outside the scope of the organization's strategic goals. This threatens the feasibility of the projects and results in the undertaking of projects that do not deliver the ideal benefits to the organization (Tonchia, 2018). The second risk associated with failure to conduct portfolio management is that the organization is likely to undertake projects which have too much risk. Portfolio management ensures that consideration of projects is holistic in that risks and benefits are weighed, side by side, in order to ensure that the risks do not outweigh the potential benefits (Jenner, 2016). As stated earlier, portfolio management entails the acquisition and deployment of qualified resources. This applies best to human resources. Without portfolio management, the firm may lack the requisite human resources to perform duties capably. This then affects outcome and greatly reduces value. In a nutshell, failure to conduct portfolio management results in two major problems: projects that should not have been picked end up in the project pipeline and due to that, projects remain in the pipeline for a long time due to unforeseen problems. The end result of ignoring portfolio management is that the bulk of projects undertaken by the firm do not deliver the desired outcomes and thus fail to advance the organization's goals.

There are several activities that can contribute to portfolio management. The first is the selection of projects with regards to how aligned they are to the firm's strategic goals. Next, comes the management of human resources. This entails planning, staffing, adapting to employee's capabilities, while paying attention to the project requirements. Human resource management also entails the training and development of human resources in order to boost their competencies.

Having gone through the importance, risks and activities that advance portfolio management, it is critical to look at the impact of phase II of Innoframe which is portfolio management. First and foremost, this phase will ensure that there is high commitment and cooperation between the project team and the management of the organization. Portfolio management ensures that the management of the organization takes the necessary steps required to ensure that projects are properly equipped and

aligned to strategy and this means facilitating the project team in every way possible (Yung & Siew, 2016). In the long run, this investment triggers a commitment between the two levels and furthers cooperation. Secondly, portfolio management has the sole objective of eliminating projects that add no value to the organization's goals. This means that unsuitable projects get weeded out at the earliest instance. This frees up the resources and project pipeline to have them used for other more beneficial projects. Essentially, portfolio management brings the organization closer to having a 100% success rate and added value to the organization.

- Explaining the four statements

Having looked at the basis of, risks and impact of Phase II, this section will now evaluate each of the statements of this phase. Just like Phase 1, each of the statements in Phase II integrate certain portfolio management concepts.

- Statement five: I am satisfied that this approach is planned in line with the project's portfolio strategy and helps in achieving its objectives.

The benefits of project plan alignment to strategy cannot be overstated. There is no point in carrying out projects that are bound not to add value to an organization. It is fruitless to initiate project plans that are not aligned to an organization's strategy because in the long run, the outcome will not add value to the organization. According to Hamdan and Jaafar (2014), the corporate world is growing more complicated by the day. These complications are made more pronounced by project failures that costs businesses up to millions in losses. A study conducted by BIA Canada revealed that one of the major reasons of project failure is the misalignment of projects to the organizations' strategic goals (BiaCanada, 2019). The main reason for this is attributed to ignorance at the project implementation level. Personnel operating at the project level may have little to no understanding of the corporate strategy. This may be due to their own doing, or at times, due to the doings of the corporate top-level management. However, considering the fact that project management falls within the precincts of strategy implementation, there should be a shared commitment towards enhancing strategic alignment. This statement is in place to ensure that there is alignment between project undertaken within the Innoframe framework and the organization's strategy, in order to ensure optimized performance and value addition from the outcomes of the project.

- Statement six: I am satisfied that the project's approach has been reviewed by all the stakeholders and it has their support and engagement.

This statement is put in place to ensure that there is sufficient support and engagement from all stakeholders involved. One of the issues highlighted with regards to the causes of strategic misalignment is the ignorance on the part of project implementation (Turner, 2014). As posited, this ignorance may be contributed by the project management team or by the executive. The first reason to propose sufficient support and engagement in portfolio management is that it promotes a better understanding of the organization's strategic goals. When the project team engages with the organization's management, they get better knowledge as to what exactly the organization's strategic goals and objectives are. This way, they are better placed to sponsor or promote projects in line with these goals. Engagement between top management and external stakeholders, such as consumers and the general public, also results in better awareness of the organization's strategic goals (Kaiser, Arbi, & Ahlemann, 2015). In the long run, the external stakeholders, by having a better understanding of the strategic objectives, will be in a better position to adjust their expectations, in line with these objectives, and support the organization through the realization thereof. Support and engagement also ensure that all stakeholders get to sign off on the project plan. Since support and engagement builds communication and connections, all relevant stakeholders will get an opportunity to give their views regarding the project, what it is they expect from it and when they expect it.

- Statement seven: I am satisfied that this project ensures a well-rounded portfolio that meets all requirements and delivers a balanced risk-reward spectrum.

As stated before, risk management is a core aspect of any business framework. This statement ensures that risk is well managed. Part of the reasons why firms are encouraged to carry out portfolio management is because they get to evaluate potential risks in a project before-hand (Lock & Wagner, 2018). This has two benefits. First, all stakeholders involved get to know the potential risks involved before conducting a project and can therefore prepare for it beforehand. The second benefit is that project teams and the management can conduct risk-benefit analysis in order to determine whether the risks are worth undertaking the project or not. Sometimes when projects are undertaken without due regard for potential risks, the project pipeline gets clogged because these projects stall as the team looks for a way to manage the risks. In more extreme circumstances, these risks are the key causes of project failures.

- Statement eight: I am satisfied that this project adds a new value to its portfolio in terms of nature, operations and end results.

Innovation and creativity were extensively discussed in the previous phase. However, innovation and creativity are important in portfolio management as well. Innovative portfolio management has received accolades for its success in value addition. Just like in project management, innovation in portfolio management has the potential to introduce new ways in which organizations implement their strategic objectives (Archibald & Archibald, 2016). These innovative ideas could benefit the organization is several ways such as by improving efficiency, cutting costs, enhancing engagement and ensuring timely delivery of projects. The biggest value of innovative portfolio management, however, is that the organization gets to tap into each and every of its human resources and their various talents. For instance, if a creative idea on how to align project processes to a particular strategy is brought forth, organizations will need to challenge its human resources to come up with ways on how they shall implement this idea - which becomes innovation. Innovation and creativity also foster teamwork in that, when a creative idea is brought forth, it is the responsibility of the entire team to work together to breathe life into the idea (Kopmann et al., 2017). The amalgamation of all the recommendations will definitely have a positive impact on portfolio management as a whole.

The eight statements that are seen in phase one and phase two were developed based on the analysis of the compiled data from the study that was conducted on the seven companies. The participation of each company in the research through interviews, surveys, and group discussions allowed for the development of the statements and topics that were seen in these two phases. The statements support several concepts that the participants highlighted throughout the study as being important to the particular phase in question. From the answers provided, concepts and ideas were seen to be repeated over and over by multiple companies. Because these concepts were repeated by multiple companies, they were seen as a common trend and were therefore developed into statements.

The background for the statements came from the literature review and the qualitative data that was collected from the seven participating companies. The statements were chosen through an analysis of the comments made in interviews, group discussions, and the results of surveys. As for guidelines, the statements were designed to be less rigid and open to interpretation. This flexibility allows for companies to modify the statements and framework to suit their particular needs and strategic approach. As for the interrelation with portfolio management, the idea is that project can be graded against each of the statements and then this combination and averaging of the graded marks provides

an overall score for the project. One of the intentions of this is to allow for the creation of strong portfolios based on the projects being considered and their performance metrics. This is where one sees the primary inter-relation between portfolio management but, in addition to that, many of the statements identified for the Innoframe scoring system encompass the idea of Portfolio management as well, meaning that the scores achieved by projects also relate back to portfolio management.

Moreover, the idea behind a project being optimized and able to accommodate potential changes relates to the concept of an agile methodology and practice. Projects are not stagnant or set in stone, often changing throughout the process. Sometimes these changes are brought on by a perceived flaw in the original plan or a new idea brought forth that will improve upon that plan, and other times this is brought on by an unexpected issue with the initial plan or resource allocation. A project that is able to accommodate for change that may occur means that the project itself will be more resilient and has a higher chance of having a useful end result for the company. Statements such as this being met in each project an organization undertakes is very important and will have a big impact of the results and success of the project. A change that is unforeseen and was not budgeted for, could result in a pull of resources that were allocated for other times or result in the project being discontinued. There is also a relation to portfolio management in this sense. Multiple projects make up a portfolio and generally have a shared pool of resources that are allocated between the projects. In this sense, if a project is not able to accommodate for potential changes and one occurs, it may impact other projects within that portfolio in terms of resource and time allocation.

- The matrix

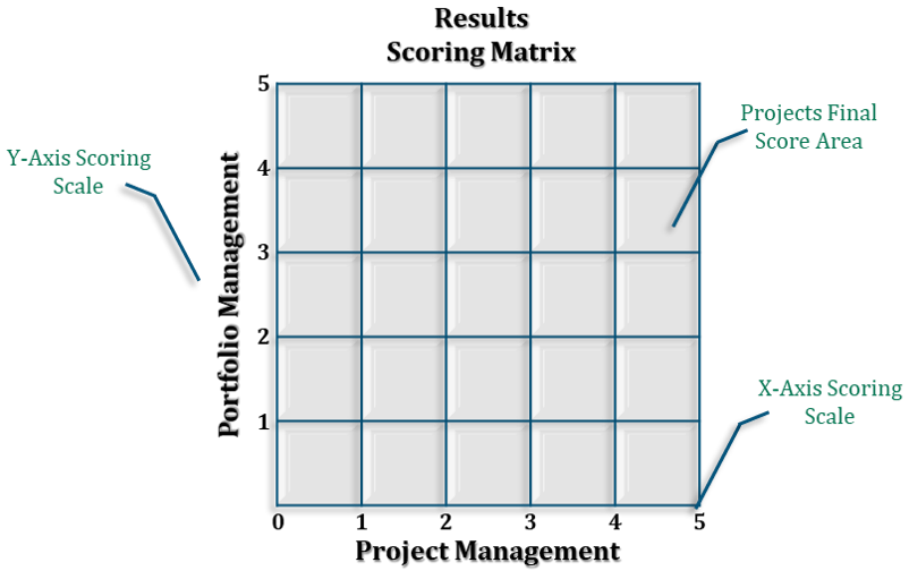

Figure 24: Innoframe - The matrix

Once the final averaged score has been determined for both Phase I and Phase II, the matrix is the last part of the framework whereby both results are plotted in a bid to establish how well the project has performed in project and portfolio management. The importance of this matrix is that it enables the project team, project manager and organization at large identify how best to conduct future projects. The organization gets to know if it has better project management or portfolio management and evaluate on how best to improve performance in future projects. An additional value is associated with the good display of the overall ranking of the projects and the ability to choose the focus dimension in accordance with the strategy of the organization. In other words, the Matrix is a visualization tool for determining how well a project performed. The portfolio management component of the project in question is determined on a scale out of five and plotted on the Y axis while the project management component of the project is determined again out of five and plotted of the X axis. By quantifying the performance of the organization and team with regards to their portfolio and project management on projects, and then plotting this onto the matrix, organizations can see where they are falling short, and where their strengths lie. By visualizing the weaknesses of the team, the organization can clearly see where they need to make improvements. The squares just represent the grid plots dividing up the area so that project can be easily located and drawn back to their corresponding value on the X and Y axes. The dots are the plotted points that have been determined from the Innoframe statement scores process. Again, the dots are a visualization of the values determined in the previous component to the Innoframe model. They show the viewer the grade on both portfolio and project management at once, which is important for determining which projects were excelling in what areas, and which were falling short.

- Overall performance management

Performance management is an essential aspect of any organization. Through performance management, an organization is in a much better place to determine what they are doing right or wrong, what mistakes they may have made, which aspects they need to improve on and which aspects they need to dial back on (Kerzner, 2017). While developing Innoframe, the researcher, fully cognizant on the importance of performance management, included scoring models on each of the phases and a matrix which is essentially where a project is located according to the scores attained in the previous two phases. This chapter shall evaluate Innoframe's performance management system starting with the individual scoring model from Phase I and II and the Matrix.

- Scoring model

For value addition purposes, Innoframe's scoring model consists of two scoring systems, the Likert Scale and the numerical scoring scale. The Likert scale is a scoring model that uses a 5 or 7-point gauging scale. For Innoframe, the 5-point scale was adopted. The Likert scale is named after its inventor, a psychologist named Rensis Likert, in the year 1932. The Likert scale was invented as a solution towards assessing attitudes and opinions and its invention was predicated upon the fact that attitudes and opinions are linear. The scale offers a range of response options within extremes of each other. For instance, Innoframe uses the "SA: Strongly Agree" numerically represented as 5, "A: Agree" numerically represented as 4, "N: Neutral" numerically represented as 3, "D: Disagree" numerically represented as 2 and, "SD: Strongly Disagree" numerically represented as 1, all come as response options for users. Another distinct characteristic of the Likert Scale is that it always has a neutral midpoint and it is typically used by respondents who are somewhat ambivalent towards whatever is being assessed.

While looking for the appropriate scoring model for Innoframe, the researcher sought a model that would give a qualitative horizon, considering the fact that statements of both Phase I and Phase II are open ended in nature. The Likert scale adds value to the framework considering the fact that the statements being evaluated seek to measure latent constructs which basically lack objective measurement. The main benefit of using the Likert scale is that it is a universal data collection tool and as such, it is much easier to understand. For that reason, there will be no need to take time to interpret the model to the respondents. Furthermore, considering the fact that the scale has a neutral standpoint, it does not force respondents to express an either-or opinion. Should they choose to be neutral, they have the opportunity to do so. Finally, considering the data from a Likert-scale survey can be translated quantitatively, it is much easier to analyze and report on them. The numerical scoring scale is also used in Innoframe. The numerical scale used in is a more qualitative version of the Likert scale. This scale was adopted due to the importance of turning qualitative opinions into numbers. While qualitative researchers disagree with quantification of qualitative data, it is important to do so in order to better assess the data obtained. The numerical scoring model supplements the Likert scale used in Innoframe, since it provides the calculation guideline.

In addition to the scoring scales, both phases of Innoframe also consist of scoring areas for both the project manager and the team members. The importance of having both of these teams contribute to scoring is because both teams have different experiences. While the project manager has a more

managerial and oversight experience, the team members have more hands-on experience and having each team contribute to scoring will ensure that the final score is all inclusive. In addition to that, all members of the team get to relay their perceptions of how well the statements have been inculcated into the project, making it a more holistic evaluation of the project. Following the score from the project manager and team members, the scored are summed and averaged to find the final statement averaged score. Finally, each of the statements' average scores are summed and averaged to produce the final average score. This is placed on the final averaged score area. The final average score is important because it gives a quantitative picture of how the project has performed in terms of inculcating the statement for each phase. The results of each phase are then located on the matrix which provides the final outlook on how the project has performed in both phases.

Innoframe was developed with input from the participants of the study along with the input from previous research and frameworks. Analysis of input from participants through interviews, group discussions, observations, and the survey, were the main driver behind the development of Innoframe. This includes all of the components of Innoframe including the phases, statements, and the methodology. Information was collected and compiled through a detailed interpretation of the input material from each participant in order to understand how we could provide the best solution to participants. The end result of that analysis, interpretation and final compilation of data was the Innoframe tool.

5.3.3.An example for using Innoframe

Let us pretend the following example is taking place at Company X.

The company has been assigned to run three different projects at the same time, project 1, 2 and 3. The director at the company has assigned to each of the three projects a project manager and team members under him. The director asked each project manager to draw with the help of his team an approach to demonstrate how they are going to implement their project. This approach is in other words a detailed plan that covers everything from A to Z.

Each project manager worked on developing his project's detailed plan with the help of his team and escalated this plan document to the director. At this point, the three plans have entered the pipeline where they will start the journey of assessment within Innoframe. After receiving the three plans, the director will start along with his team to review, discuss, and assess the plans and decide at the end of the route on the ranking of these projects. The ranking of the projects will help understand the importance of each of it and reveal how much does each of them fulfill the requirements of innovation

and portfolio management. In addition, it will help decide how the resources will be distributed and how the follow up shall be conducted.

While the plan documents are still in the pipeline, it means that these plans are being reviewed and discussed in detail by the director and his team. After the reviewing process is completed, the plans will move to phase 1 where scores should be given. In phase 1, the following numbers and facts are pretended.

The director team who is engaged with him in the review and assessment process consists of four people.

- For statement one:

The director was neutral about the statement meaning his opinion holds score 3.

The team scores are as following:

- Member 1: 3
- Member 2: 4
- Member 3: 3
- Member 4: 2

To be able to put the team's score in one field it should be averaged. The average is (3 + 4 + 3 + 2) / 4 = 3. Thus, the team's score is 3.

Now we have the two main statement's scores, the director score, which is 3 and the team score, which is also 3, according to the above averaging.

We will have to obtain the final average of this particular statement which is called in the labelling the statement averaged score, and it is as follows: [3 (director score) + 3 (team score)] / 2 = 6/2 = 3. The statement average score is 3.

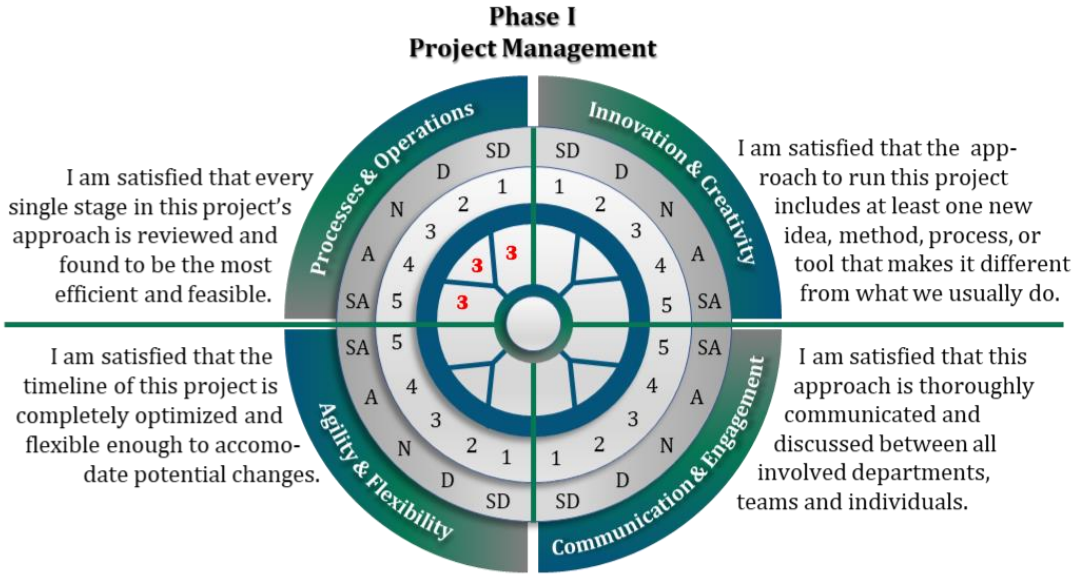

Figure 25: Statement 1 scores

- For statement two:
  - Director score: 4
  - Member 1: 2
  - Member 2: 4
  - Member 3: 1
  - Member 4: 4

Team member's averaged score: (2+4+1+4) / 4 = 11 / 4 = 2.7

Statement average score: [4 (director score) + 2.7 (team score)] / 2 = 6.7/2= 3.4

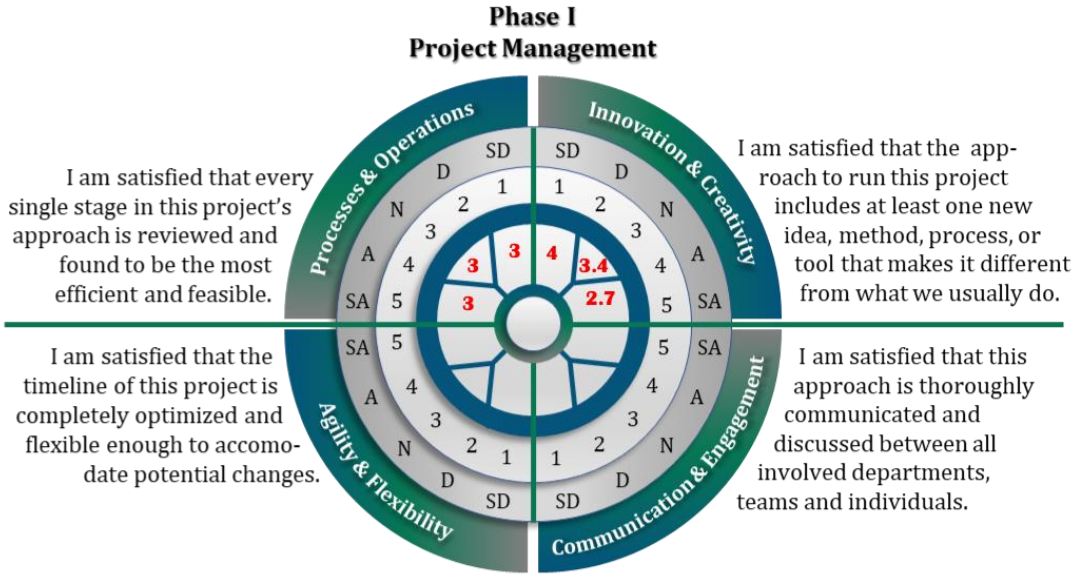

Figure 26: Statement 2 scores

- For statement three:
  - Director score: 4
  - Member 1: 3
  - Member 2: 1
  - Member 3: 1
  - Member 4: 3

Team member's averaged score: (3+1+1+3) = 8/4 = 2

Statement average score: [4 (director score) + 2 (team score)] = 6/2= 3

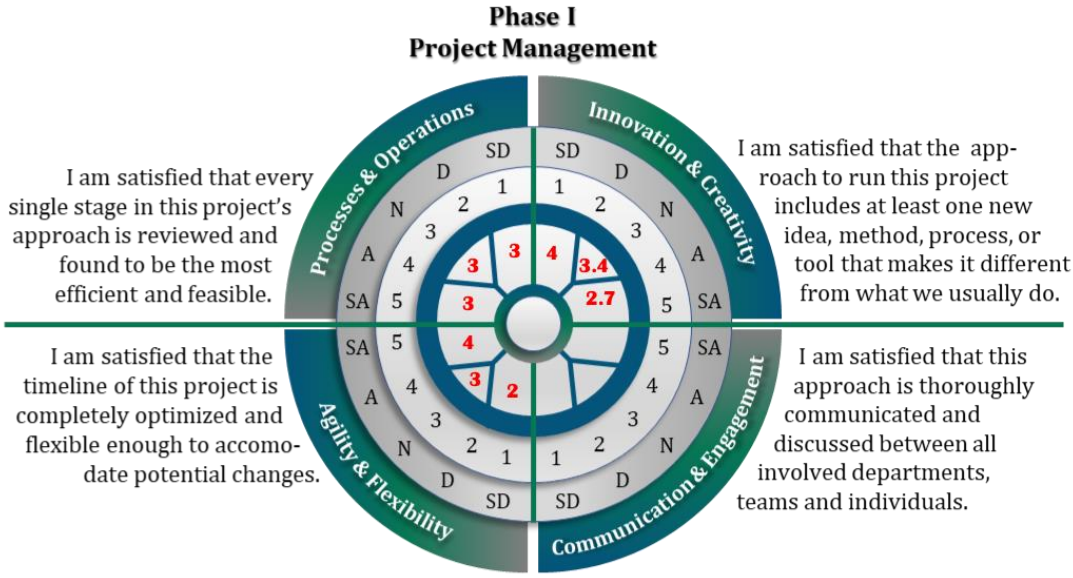

Figure 27: Statement 3 scores

- For statement four:
  - Director score: 5
  - Member 1: 3
  - Member 2: 4
  - Member 3: 3
  - Member 4: 5

Team member's averaged score: (3+4+3+5)/4 = 15/4 = 3.8

Statement average score: [5 (director score) + 3.8 (team score)]/2= 8.8/2= 4.4

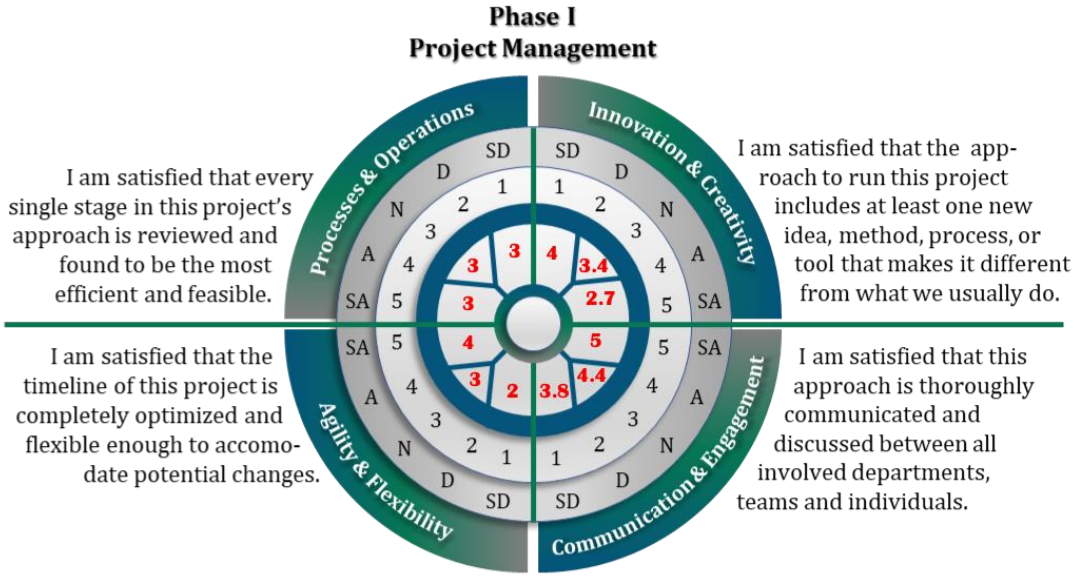

Figure 28: Statement 4 scores

At this point, the phase 1 that assesses the project management and innovation fulfillment is done and we need to obtain the final score for the whole phase which is the average of the four statement average scores, and it comes as follows: (3 + 3.4 + 3 + 4.4) / 4 = 3.5.

The final score for phase one is (3.5).

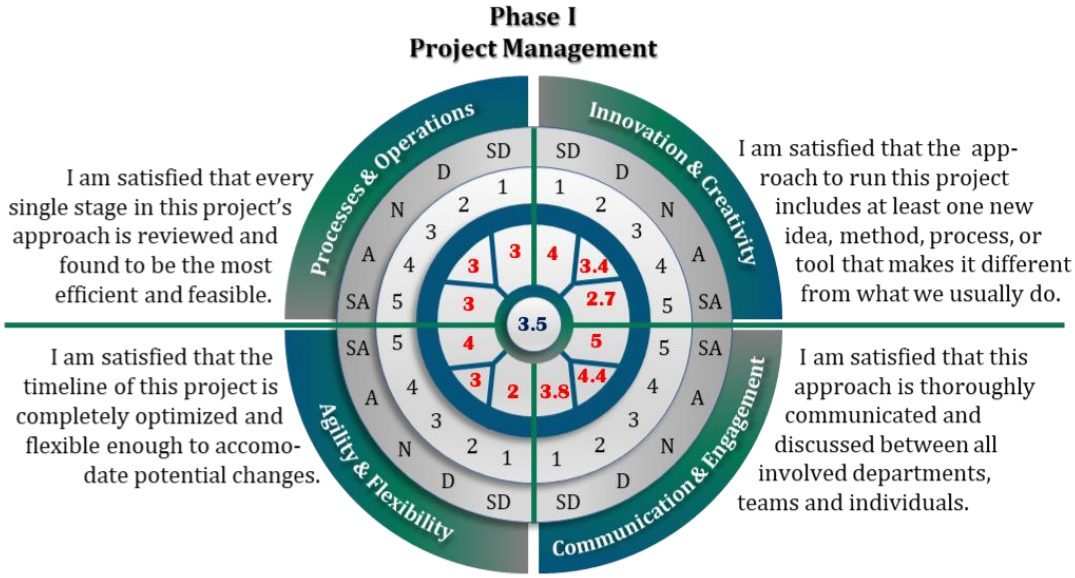

Figure 29: Phase 1 score

Moving to phase 2 that assesses the fulfillment of portfolio management and innovation requirements. It has also four statements numbered 5, 6, 7 and 8.

- For statement five:
  - Director score: 2
  - Member 1: 1
  - Member 2: 2
  - Member 3: 3
  - Member 4: 2

Team member's averaged score: 1+2+3+2 = 8/4 = 2

Statement average score: 2 (director score) + 2 (team score): 4/2= 2

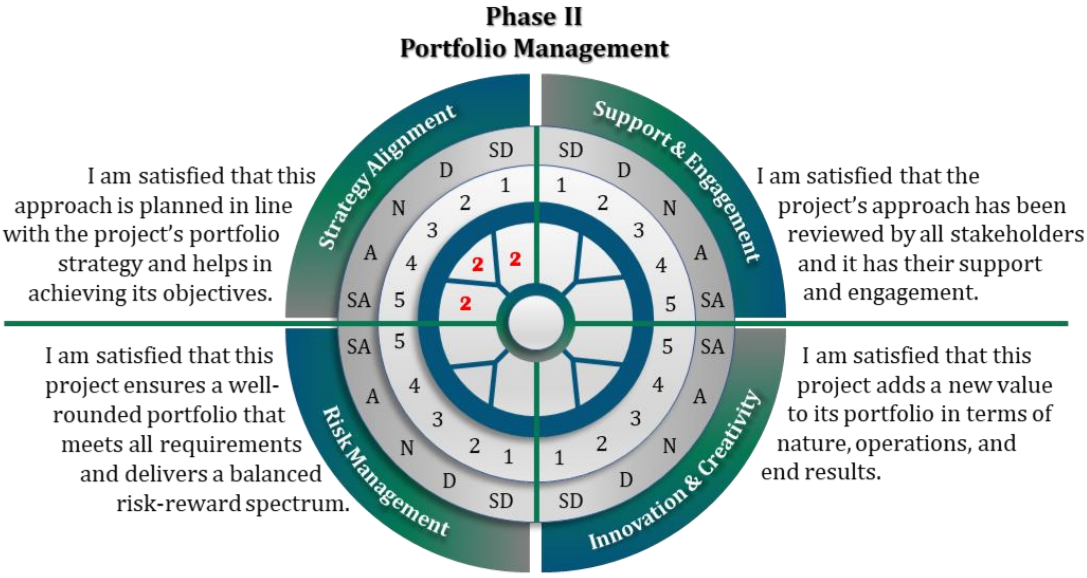

Figure 30: Statement 5 scores

- For statement six:
  - Director score: 4
  - Member 1: 4
  - Member 2: 4
  - Member 3: 3
  - Member 4: 4

Team member's averaged score: (4+4+3+4)/4 = 15/4 = 3.8

Noting here that taking the pure average without giving different weights to the director on one side and the team members on the other side would definitely present itself as a weakness to the framework that

should be addressed furthermore. This presents an opportunity for improving upon the framework in the future by other researchers.

Statement average score: [4 (director score) + 3.8 (team score)] / 2= 7.8/2= 3.9

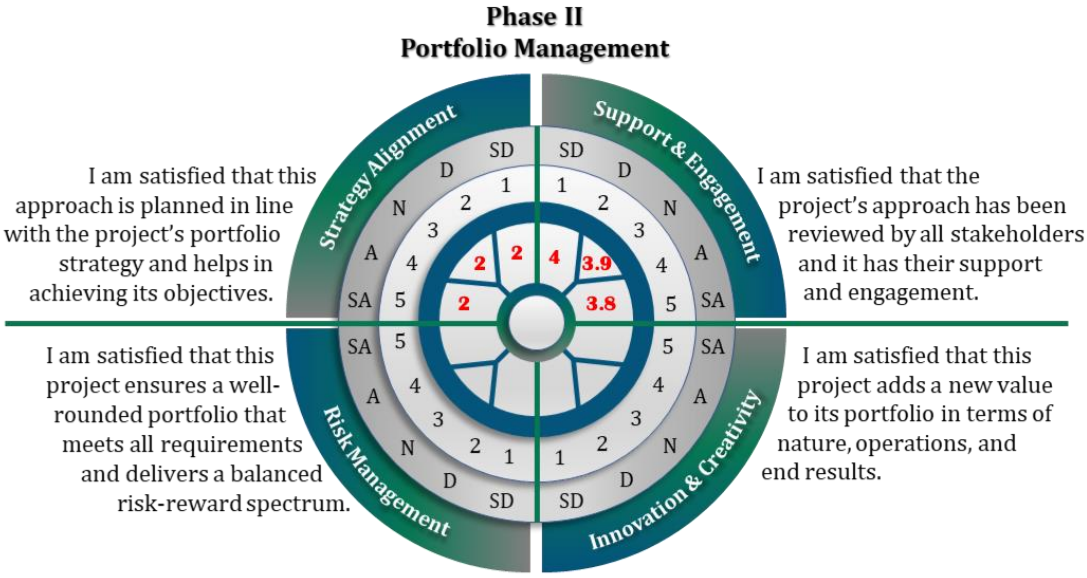

Figure 31: Statement 6 scores

- For statement seven:
  - Director score: 3
  - Member 1: 2
  - Member 2: 4
  - Member 3: 3
  - Member 4: 3

Team member's averaged score: (2+4+3+3)/4 = 12/4 = 3

Statement average score: [3 (director score) + 3 (team score)] / 2 = 6/2 = 3

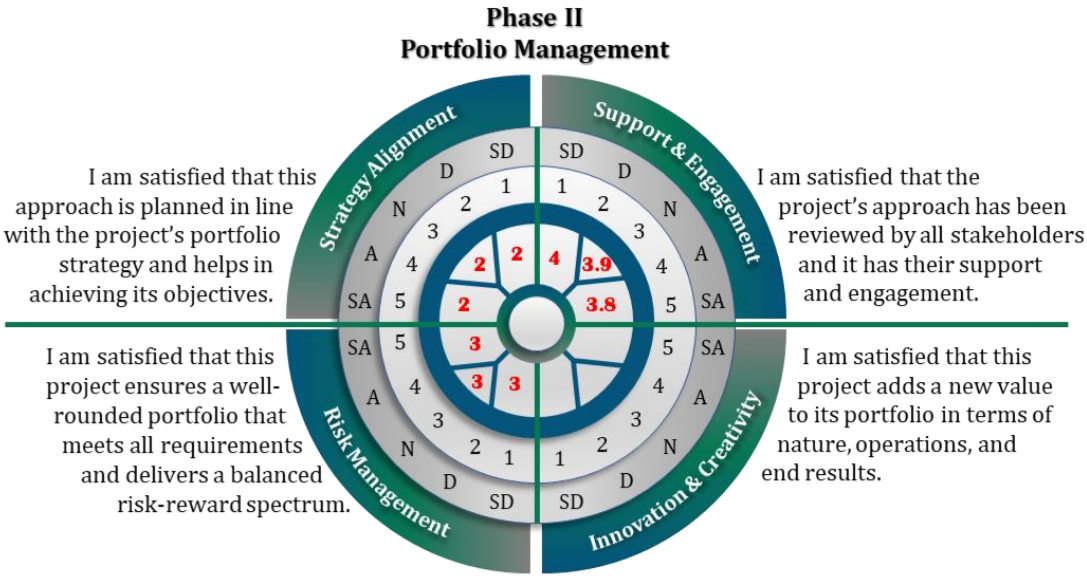

Figure 32: Statement 7 scores

- For statement eight:
  - Director score: 3
  - Member 1: 1
  - Member 2: 4
  - Member 3: 2
  - Member 4: 3

Team member's averaged score: (1+4+2+3)/4 = 10/4 = 2.5

Statement average score: [3 (director score) + 2.5 (team score)] / 2 = 5.5/2 = 2.8

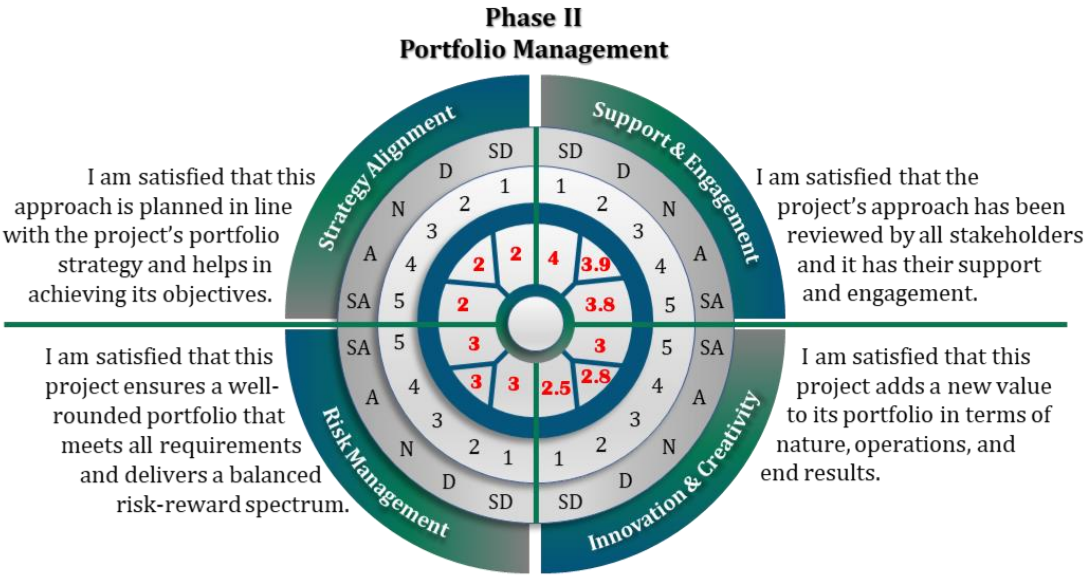

Figure 33: Statement 8 scores

Phase 2 that is now complete.

The final score for the whole phase is: (2 + 3.9 + 3 + 2.8) / 4 = 2.9

The final score for phase two is (2.9).

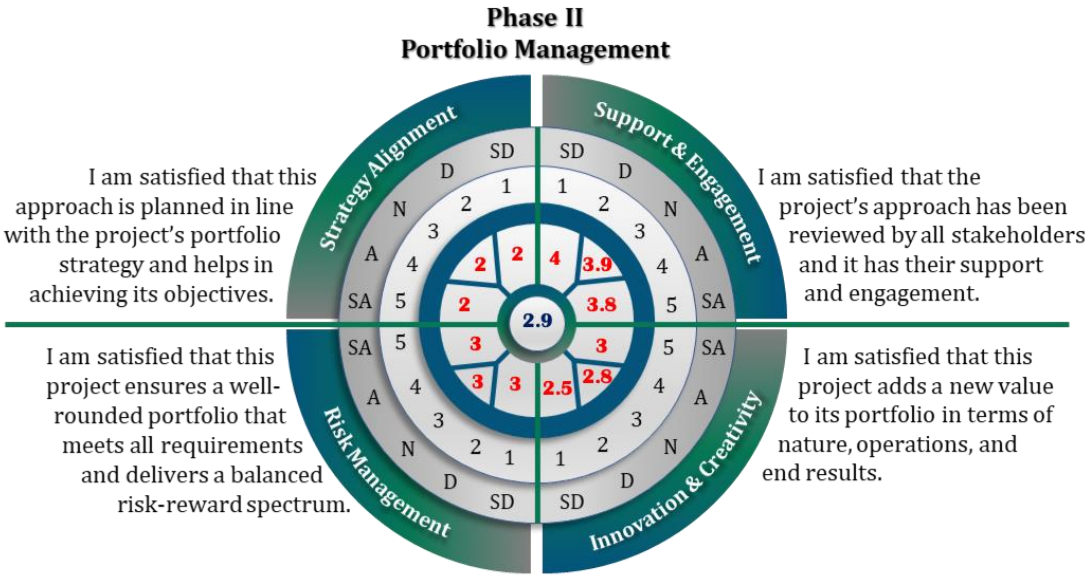

Figure 34: Phase 2 score

The matrix that shows the final result for project 1 has a coordinate of (3.5, 2.9) and is demonstrated as follows:

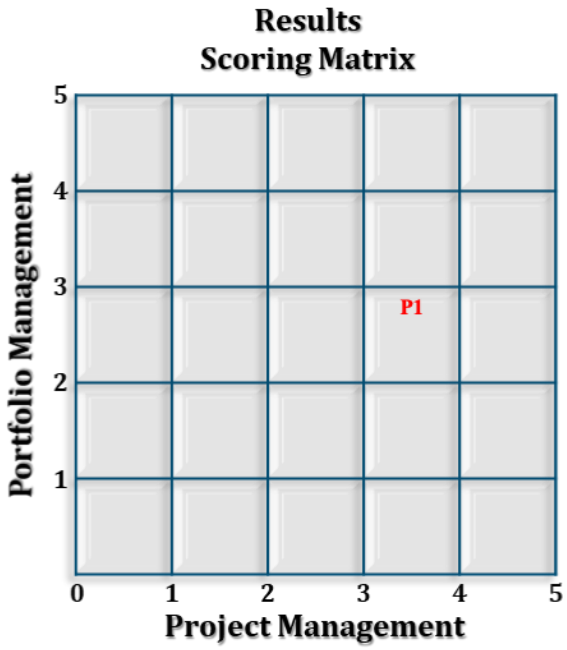

Figure 35: Project 1 coordinates

Assuming that the above same procedures were applied to project 2 and 3, and the following results were obtained.

Project 2 matrix coordinates (2, 3.5)

Project 3 matrix coordinates (1.5, 4)

So, the final matrix demonstrating all projects at once looks as follows:

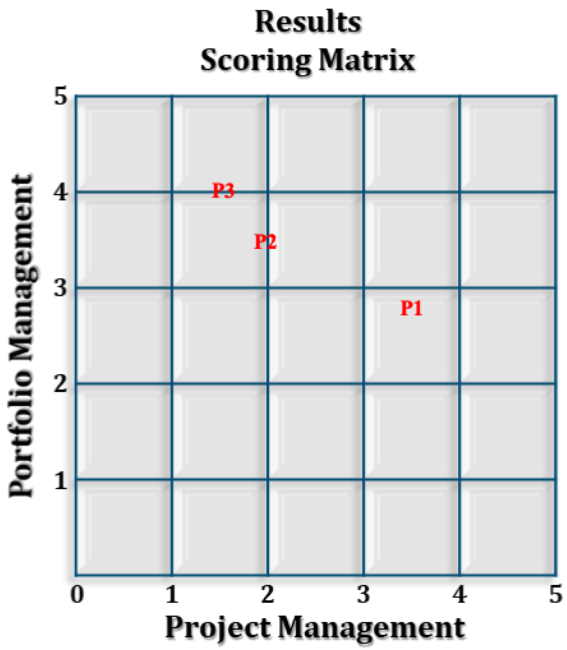

Figure 36: All projects coordinates

As a conclusion from the above example, it has been seen that the director and his team who supposedly used Innoframe in the above example have passed through several important phases and steps before reaching the final matrix results.

The director and his team have been led through Innoframe to tackle specific vital matters that pertain to portfolio, project and innovation management for each of the analyzed three projects. This step has ensured that everyone engaged in each project has studied, analyzed and given his subjective opinion regarding each matter. Those opinions were then turned into numbers to help quantify them and reveal them in the form of scores.

The final step of Innoframe has concluded, in a numerical and clear form, the opinions of five persons (the director and his four team members) and posted them on a simple matrix that shall help the decision maker in multiple ways. Now that the final matrix is already done and in hand, the decision makers are able to identify the ranking of each project in terms of project and portfolio management. They are able to ask the team to improve the project that has low score, select the project that they would like to start with, allocate resources depending on how much each project fulfills the requirements and make use of other privileges.

After the Innoframe model has been completed by an organization for a project, the matrix can be used as a visualization tool of the averages of the input given be the project team members and project manager. The idea behind compiling the input from the team is that it will give the organization an idea

of how effective the project performed in both project and portfolio management. This information should ideally be used to address the issues that team members saw with the functioning of the project based on the eight statements that make up the key inputs to the model. This helps to facilitate a portfolio, with ranking the importance of projects, and it also facilitates the engagement of teams with one another. It may also help to identify areas that should be improved upon moving forward with future projects of a similar nature.

The idea behind Innoframe was that it would be a tool that could be easily used by anyone. One of the downfalls of some tools developed in the past is that they are too complex or theoretical to be useful to most individuals. Innoframe aimed to overcome this short-falling so that it could be used for a variety of different organizations and organizational units. It also requires the input and opinions of participants and those opinions are then converted into numerical values. This ensures that the framework can be operationalized for process improvement after each project.

Innoframe can be employed for various departments looking to improve processes in both project and portfolio management and can therefore be employed by project and portfolio managers at the higher level. Innoframe can also be employed, however, for the management of day to day operations. For example, the matrix results can be used to develop the most robust portfolio of projects, as well as to identify where projects were not doing as well and use this information to address problem areas for improvement in future projects. It can also be used to order project in terms of more beneficial to the organization.

5.3.4.Final layout and conclusion

A business framework is an important aspect of any organization. However, what is most important is that the organization adopts a holistic framework that captures all aspects of the business. Existing frameworks have been used for a long time, however, there efficiency is in question due to several reasons. First of all, those frameworks are unidimensional in that they only cover either project management or portfolio management. Secondly, those framework have been in used for years on end and have not been changed to adapt to the contemporary business world. The contemporary business world is highly competitive and ever changing. For that reason, ideal frameworks should promote aspects such as innovation and creativity, engagement and strategic alignment, in order to ensure that the business' projects perform better.

Innoframe was developed for the sole purpose of ensuring that projects undertaken under Innoframe have a better advantage and higher chances of success. This business framework is holistic in that it

has all aspects of a project, from approach to execution, summed up in it. Innoframe contains the project pipeline, which is the path that the project plan should take before execution. This project pipeline ensures that for every project, all individuals and departments that have a role to play get involved and sign off on it. This ensures efficiency and synergy between the departments while also highlighting who the key players are, in order to avoid situations where irrelevant departments or individuals make input on a project thereby creating undue delays. There are several more risks associated to not including a project pipeline in the business framework, but the main risk is, without a robust pipeline, project delays are a possibility because projects will more often get delayed due to disorganization. In other circumstances, project plans may fail to get approval because they did not pass through all the concerned department and so all the risks would not have been evaluated.

Phase I of Innoframe follows the project pipeline. This is the project management phase. The importance of this phase cannot be understated. Phase I governs expectations surrounding delivery. Through this phase, stakeholders know what to expect, when, how and for how much. Phase I of Innoframe has inculcated 4 statements that ensure that key concepts surrounding project management are addressed. Phase I of Innoframe is also very progressive in that each of the concepts addressed are compatible with the new corporation era, where organizations are in a race to deliver the best quality outcomes. It has included age-old concepts such as processes and operations. Phase I has also included newer concepts in project management such as innovation, creativity, communication, engagement, agility and flexibility. Each of these statements has a scoring matrix that enables the key players evaluate how well each statement has been inculcated into the project.

Phase II is portfolio management which is equally important because it affects the substance of the project. Portfolio management entails the maximization of value, oversight of the project and strategic execution. This phase involves the input of the senior leadership of the organization and ensures that all the levels of the organization are involved in a project's success. Just like Phase I, this phase is also driven by key concepts, with statements that evaluate how well the concepts have been inculcated into the phase. Innoframe's portfolio management is superior to other such frameworks, because it adds new concepts that were initially assumed to hold no place in portfolio management. The key concepts that drive this phase are strategy alignment, support, engagement, risk management, innovation and creativity.

The icing on Innoframe's cake is the fact that this framework emphasized performance management and takes it to another level. Innoframe's performance management involves all team members and

the project manager and this ensures that the final result is holistic and therefore not subject to individual bias. The result from both phases are plotted on Innoframe's matrix and this will provide a true reflection of how well the organization has performed in both aspects.

And as it has been emphasized, one of the key success factors for companies is the ability to scale rapidly while still maintaining their innovative edge. SMEs usually and due to their size have less decision-makers than larger ones, which makes it easier to take the risks needed to remain as innovative as possible. As these companies start to grow in size, they start to experience a downturn in innovation since their management layers are increasing. This means that one of the main obstacles to improve responsiveness is slow decision-making. Innoframe comes to help speed up the process of decision making by unifying the routes for choosing the portfolio projects and structuring a process for this purpose.

Another important aspect that Innoframe adds to help improve innovation within SMEs is engaging cross-functional teams for constructive discussions and debates. Several companies may find that some of its departments become solo players in certain phases of the work, which might lead to a duplication of work and conflicts. This means that the absence of right knowledge sharing, the lack of communication and the weak engagements of different teams across the organization will lead to a failure to utilize all resources available on a project and cause major problems and obstacles on the way of success. Innoframe, by introducing the pipeline that has several entrances and one exit, brings different teams to one table to conduct some sort of needed discussions and debates that will add a big vale on the way of revising the project plan and approving the final version of it.

The validation of the model was not possible given the restrictions of time, personnel, and other resources and it is a limitation to the model. This limitation presents an opportunity, however, for researchers in the future to validate the model and provide insights from that. Validation could be performed within real companies taking on project management and portfolio management. With a researcher collaborating on the process and getting feedback for what works and what does not in the organization's context with regards to employing Innoframe. If this were to be validated, it should be done on a larger number of companies, tested on a number of projects within each company to provide a large pool of input for improvements and testing of the model. This testing should also be done over a more extended period of time in order to collect as many results as possible. With a wide net of reach, the Innoframe model validation process can ensure that it is usable in practical settings and identify any areas that should be improved upon or altered completely to make it a useable framework.

Many of the weaknesses have been mentioned before in answering other questions but a summary will be provided. There was a lack of time, money, and resources which contributed to many of the weaknesses that will be identified. There were only a small number of organizations studied, meaning that the results were more specific. In terms of the Canadian context, organizations targeted were only residing in the Province of Ontario, with the vast majority specifically located in the central area of the GTA. This means that there is a chance that the tool will be less applicable to organizations elsewhere across Canada and the sample may not be as representative as would be ideal. In addition, Stakeholders were not included in the group of people providing input. This input was solely provided by project team members and team leaders, thus cutting out a group with different but equally valuable insight. Finally, averages were taken of the input each individual gave which means that the input of more experienced team members was weighted equally to those team members who had less experience. This may pose issues with the numerical values that are assigned to the projects in the end.

All in all, Innoframe was created because it is important to appreciate the complexity of business and for that reason, it is ideal to ensure that the frameworks used to manage such businesses are holistic, multidimensional and easy to use.

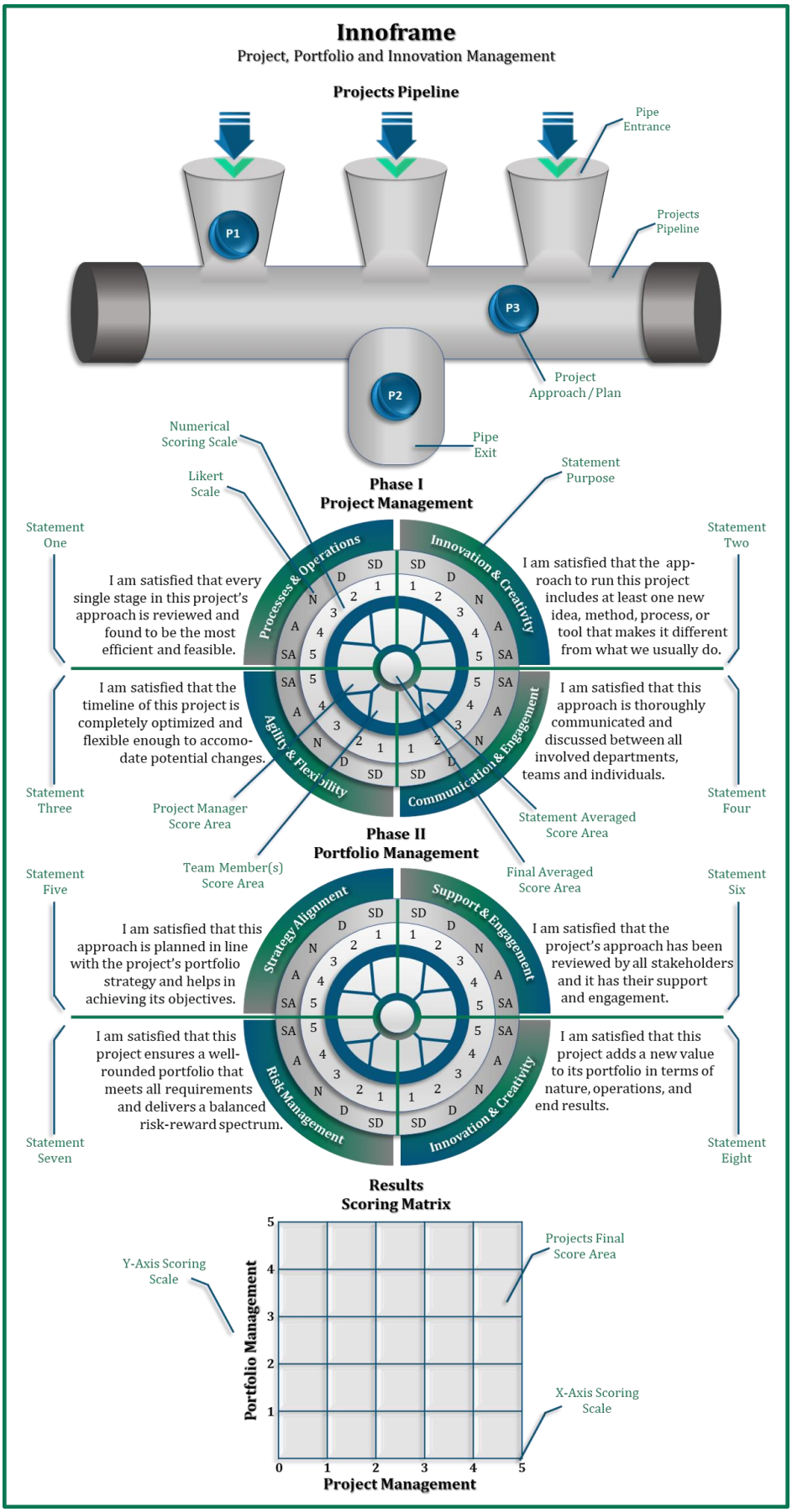

Figure 37: Innoframe - Labeled

6. Conclusion and Future Prospects

The chapter is designed to summarize the long process that started with drawing the research question and ended with the creating of Innoframe that serves as a tangible answer for this question.

6.1. Executive summary

This study comes to add a new touch into the world of business frameworks and models that has become recently more controversial and debatable. It navigates in different zones to try to open a new window on how frameworks shall look like in this era, moving all the way from understanding the background and basics to developing and proposing a new modern framework. The main question that was raised at the beginning of the research is: *How can an integration among project, portfolio and innovation management create a multidimensional framework to support SMEs for better end results on the three levels?* The main objective of this research was to develop a new framework that comes to answer the main question showing an smooth integration among the different concepts, combining the main elements that are essential on three levels, project, portfolio and innovation management, and putting them effectively together to give small and medium sized companies a new route for more efficiency and better end results through one multidimensional framework.

The literature that was treated did not assist a lot in giving a technical view due to several reasons. Although the field of research is rapidly growing and considered more essential for businesses, yet the theoretical and academic studies for it are still poor. The literature helps in understanding the general guidelines, basic structure, importance and influence of frameworks on businesses. It sheds the light as well on the relationships among the different concepts that are tackled in this study.

The research has followed a clear path in order to be able to tackle all required matters for developing the framework. It follows a case study approach and navigated through a pragmatic philosophy that enables it to accept different point of views and turn them into useful results, while working on an inductive reasoning route in a multi qualitative environment.

The data treated was collected from a sample that is as representative of the larger target industry as much as possible so that a variety of viewpoints can be captured in the research conducted. And for better convenience and higher performance, while having limited resources especially time resource, the sampling phase had to be designed in a way that divided the target industry into different layers and

stratum to narrow down and navigate in an easier way. The same concept was applied to a big extent when the tools of data collection were used inside companies so that there is more ability to contact key people, who can really help add a good value to the research. It started with a focused group discussion that was held with a main purpose of collecting particular technicalities and practical experiences from a specified number of well-qualified team members. Then covered an “informal survey”, taking place within the sampled companies, by different facilitators. And lastly reached an observation that came in the form of “participant observation” and happened inside an ongoing working environment over a period of couple of days.

The context of the data analysis phase takes two main forms to allow the research to have better display for the reader. A deep manual analysis has been conducted in parallel with the software analysis approach. Both were able to give us a zoomed in look into the perceptions of the different participants and wide data spectrum. This led the research to have a rigid foundation that was used to develop “Innoframe”.

The development of the new framework which is named “Innoframe” passed by several phases, as it looks in the end result. The attempt to make the framework universal, flexible, and multidimensional was successfully accomplished. The three concepts, project, portfolio and innovation, were maintained as much as possible. The objectives that were set initially were mostly met by the end of the framework development.

And not to forget that as any other research study, there are shortcomings, certain conditions or major influences that are out of control and place restrictions on the methodology and conclusion. This research has as any other research some limitations that influence its results in a way or another.

One of these limitations pertains to the resources that were available during the study. This specific issue put a restriction on the scope of the research in a way that enough time, staff and other things was not properly found to enlarge the sample size for instance or to extend the practical application of the results. Yet the study covered what was essential to build the necessary base of data that can help lead to good result. Most often this limitation has an effect during the data collection phase, though in this research it has been known at an early stage that our resources will be either limited or difficult to solicit and thus some precautions were followed to help reduce the effects that might happen.

This limitation affected the ability of validating Innoframe and thus ended the study at before the testing phase. The validation that could take place as a further step afterwards could fall into several categories

content validity, structure validity and results validity. Each one of them seeks to answer a different question, check specific situation and validate its overall usage and effectiveness.

Content validity seeks to work on the current questions and subject matters that are included in Innoframe and whether they can be of a close-ended nature and how would they be improved.

Structure validity works on the design and construct of the framework. This has to do with the content as well and the way of displaying the pipeline, two phases and the scoring matrix.

The results validity is related to effectiveness and usability of the results that are obtained after utilizing all the parts of the framework. This is important as it examines the level of ability, smoothness and efficiency of this framework.

The validation process gives a complete measure of all aspects of what is being structured and investigated. This shall include measuring the right things in the right way as well as having an adequate testing sample. The testing might include interviewing new participants such as portfolio managers, CEOs and some other stakeholders and might propose including weighs to the different opinions that are represented in Innoframe in the form of numbers.

The study itself and the outcome of it opens new paths for further studies and challenging papers that have to evaluate the usage, propose modifications, embed new enhancements into the framework, and work on the limitations and weaknesses reported in this study. The primary weakness seen with the research was the lack of validation through implementation of the framework in a project or portfolio management setting. A practical testing of the framework would give a more solid foundation to the theoretical and case-study research that was performed and expose any issues with the framework that could be altered or improved. This testing did not occur primarily because of a lack of time and resources (both monetary and personnel). There were also fewer participants in the case study portion of the research than could have partaken due to these same limitations of time and resources. There was only one researcher in the field doing the research. In the future this could be overcome through having access to a greater number of resources. Engaging a team of researchers would benefit the case-study based portion of the study while also allowing for a practical employment of the framework to be studied by a single researcher working with a participant company.

Another weakness was that the companies were chosen from a single general location, that location being the GTA. The study was aimed at the Canadian landscape as a whole but restraints on ability to travel and access companies Canada-wide meant that a more localized pool of participants was drawn from instead. To develop the ‘Canadian landscape’ further, it may be ideal in the future to draw on

networks in other areas of the country to pull companies in the industry into the pool of participants. This goes back of course to the time, monetary, and personnel restraints that ideally will pose less of an issue in the future.

And finally, below is the framework in its final look.

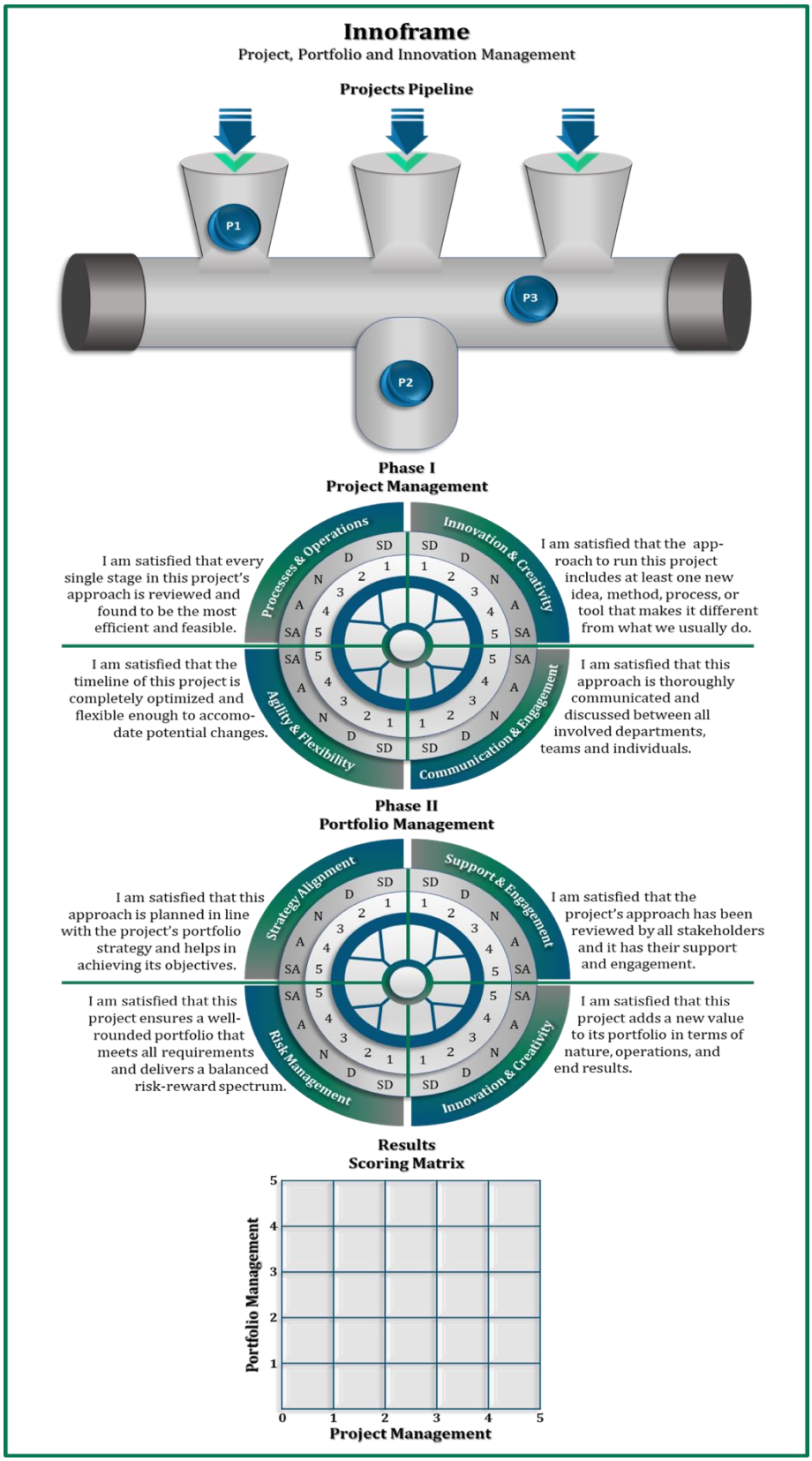

Figure 38: Innoframe

6.2. Opening new horizon

The outcome of this research could serve as a start for several valuable studies in the near future. The nature of the outcome of this research is something that can be easily subjected to evaluation and assessments throughout the years. And because of this, the continuous studies on this framework might be tempting to many academic students whether they are studying business or engineering majors.

On a first level, it is clear that such a framework proposes a theoretical and practical approach to companies, without giving a big room for a thorough assessment of the usage of this framework. This is one route that can be followed by another researcher to assess the effectiveness of this frameworks on the short, medium, and long run. It can be useful in leading to other areas of study as well as research that works to improve upon and test the Innoframe model. The main pathways for further research will come through testing the model in companies. This will help to make improvements upon the framework to ensure that it is usable for a wide range of organizations. It will also help to expose new paths for research exposed by researchers implementing and testing a new model. Once abnormalities have been exposed and identified as research gaps, this will open up the door for researchers to commence new studies concentrating on these specific areas.

Another level could be relating the framework to certain kind of projects rather than another. In other words, this framework can be proved that it works better under certain conditions and for certain type of projects. This also needs a deep observation within companies to come up with clear answers.

Moreover, the framework itself might be a field for another study to be altered in a way to fit more into certain contexts. This is left for the interests and imagination of the coming researchers.

6.3. Author's last word

I have been delighted that I had the opportunity working on this research under the patronage of my supervisor professor Anabela Tereso, the Production and Systems Department and the entire School of Engineering. Now that I am writing the last page of this paper, I would like to express my warm feelings and recall some important milestones that happened throughout my long journey.

It was a journey of four exceptional years of my life, in which I have had some of the most significant events and biggest moves in my life. During these years I have married my lovely wife, relocated from Lebanon to Portugal, had my first sweetie child, relocated again to Canada, worked on my second literature master's degree, started my own business and received my second beloved child. All were

associated with big excitements, challenges, instability, risks, and joy. They were all big barriers and motivations at the same time. I have never imagined that my journey will be that crowded, but happily they were all successfully accomplished.

I have chosen to write down all of these events here, just because I believe that hard achievements and big milestones shall remain always memorable.

It was extremely hard and challenging yet exciting and enjoyable. And if I were to turn back to day one and decide whether to go through all of this together or not, I would still choose to do it simply because good and big achievements are worth every minute and effort in our life.

Do not give up on your good dreams, no matter how big, hard or far they are, and always make the end of each be the beginning of another.

Let this statement be the last in this paper and the first in a new chapter of my life.

Thank you.

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APPENDIX I: INTERVIEWS TRANSCRIPTS

Interview One

- Company 1

- Interviewee profile overview: An extensive experience exceeding 10 years in commercial construction & custom homes. The company is one of the leading metal fabricators in the Greater Toronto Area. His experience is focused on metal fabrication and installation in addition to designing and building steel stairs, ramps and stainless-steel railings with tempered glass and wood treads.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: Hello Mohamad and thank you for choosing our company to be one of those who will be engaged in this project. Regarding your question I would say that those three concepts are meant to organize and streamline the processes in any business, or in other words they are found to optimize the processes. This is how I understand the three of them. They are highly emphasized in today's world. All businesses are now concerned about how to ensure the three of them in their operations but still the methods, styles and commitment differs from company to company and from manager to manager. Innovation management is essential to the company's success, without innovation companies cannot compete in the market. Portfolio management is more treated on a scale higher than project management, it is more to help assess the priorities of the projects and what projects make more sense for us. Project management goes more into streamlining the processes of achieving something, what is step A, B and C and who is in charge of each one. That's in general about the three concepts.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: This is quite challenging. There are many interrelations when it comes to linking these concepts to what you have mentioned. Our industry is big and requires high professionalism. You know that like all other industries, there are sharks who control big portion of the market. So, the nature of the industry pushes us to offer the best and to be innovative as much as we can. Portfolio management has more to do with the company's mid and long-term objectives. The chosen portfolio has to be in line with the business objectives or else the portfolio will be rejected from the management. My tasks are more into project management, it is pure project management. Some project requires planning the most, others might be challenging with time management or cost management. So, it depends on the project itself. I enjoy it, yet it is always challenging for me.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

Answer: They are interrelated big time. The three concepts represent in a certain way a multi cyclic chain that has dependencies in many sides of it. Specifically, portfolio and project management, they have many things in common. And innovation should fall into both of them or in other words represent the theme for both of them. In our company we emphasize the coherency among the personnel who are looking after each of these areas.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer: Starting with Innovation management. I can mention one main thing that innovation brings to business.
   1. Increasing competitive advantage.
   This is essential for any business. Maintaining innovation can put you on the top of your competitors in the market. Also, it is important to mention here that companies need to keep an eye on the performance of their competitors and whether their competitors are coming up with new ideas or products or not.

   Moving to the second concept portfolio management, I will mention also one important point here which is:
   1. Maximizing resources. I mean by this the ability to balance and apply better deployment of your resources (mainly funds and staff) which accordingly leads to higher project success rate.

   On the third level which is project management, we have for example:
   1. Ensuring effective management for projects.
   Simply because when we follow best practices, we can avoid many problems and smoothly move on with the project.
   2. Ability to overcome problems quickly.
   Streamlined and clean process helps the team in finding the solution or the work-around for any obstacle. When things are clear and defined, the riddle is solved.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: From a project manager point of view I would rank project management in the first place, innovation management in the second place, and the last is portfolio management.

6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: Well, frameworks are considered important to businesses since they serve as defined guidelines to achieving certain process, goal, or situation. I like and recommend using it for teams and individuals.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: The answer depends on three main things. First the framework itself, second the user of this framework, third the situation or the approach to be done. But basically, and without looking to

any of the circumstances, the framework should exist to facilitate, smoothen, and accelerate the approach of any operation.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: Both matters are related in one way or another. I mean frameworks have impact on both matters one in a direct way and on the other in an indirect way. The team deals with the framework directly, so the impact should be direct. And if the performance of the team is impacted definitely, it will affect the final business outcomes.

9. Question: Do you currently use a specific framework with your team?

   Answer: Actually, we have built our own approach. It is a simple model, it is not that complicated, but I mean we have designed something based on our internal learnt lessons and best practices. We had to do this as didn't find what perfectly meets our needs and requirements. We always look forward toward having something new, either modifying this one or using a totally new one. Until then I guess we are good with this one.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: If you mean by management the top management or the executive level, they don't involve too much into the tools and processes that we use. If you mean our direct management then my answer is yes, they do recommend using frameworks and they emphasize documenting all the processes, lessons learnt, and the best practices that we do. It is something essential for them.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: I think there are several reasons that keep many managers away from using frameworks:
    1. Being Unidimensional. We notice that many of them takes you in one way, while we need flexibility in dealing with different directions. Our medium and small-scale projects need frameworks that merge more than one direction together. It is not only innovation that we need to concentrate on, not only portfolio management; maybe we need them all together especially for smaller projects.
    2. Other frameworks are either designed for very big teams and deal with wide scales and long-term objectives or designed for very small processes. Something in between is what could be the most suitable for us.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?
    Answer: On the three different levels, what is essentially needed is a framework that allows us to deal with more than one concept at the same time on a basis of flexibility, precision and professionalism. One roadmap that can help us manage our projects while ensuring innovation and meeting our portfolio strategy. Something like this would be awesome and useful.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Performance perhaps. It helps in lifting our key performance indicators on all levels.

Interview Two

- Company 2

- Interviewee profile overview: An outstanding profile with 15+ years of experience in project management and renovation services. His experience covers all areas of inside and outside of the house. He works in different joint ventures with big companies and mostly for his own business. He leads a team of around 10 technical people from different backgrounds and cultures.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: First of all, I would like to thank you for this opportunity. Well, I would say from my perspective as a person who has been running critical projects for several years that project management is something that made my life easier. Yes, this is true. It is an essential requirement for successfully completing any project, without it you would be losing time, money and effort while achieving nothing. That is what I care the most about. Maybe because I am a technical project manager, I feel that this is the most thing I do care about. Portfolio management and innovation management are also important but come in the second level. Without good management for your project you'll have nothing to improve, and you'll have a failure portfolio by the end of the day. This is my opinion.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: To begin with my tasks, project management and specifically the execution phase is what consumes most of my time and effort. I am always worried about delivering what was exactly mentioned in the plan. You need to get back to what you've planned in order to make sure there is no deviation from the initial roadmap. At the planning phase, you have a good room for introducing new ideas and being innovative as much as you can. After that things will take a static streamline in accordance to what have been planned. While working on my projects, I need also to align with the general policy of the portfolio that my project belongs to. Each portfolio has certain guideline and direction that applies to all its projects, but it will remain general and will not control the detailed process of the project. Innovation management is like the umbrella that belongs to all of these levels.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

Answer: For sure, I believe there is a strong relationship that brings all these concepts together. Not to forget that the success of each of them depends on the other indirectly, and sometimes directly. Those areas are being the most emphasized in small and medium companies as it has been widely believed that modern companies' success is tightly tied to their ability to innovate and optimize their processes.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer: For innovation management I would say:
   1. Optimizing business efficiency.
   As you know, when a company decides to move forward with innovation it has to improve the core operations and engage its employees which will help streamline all its internal processes.
   2. Hooking and recruiting top talents.
   Innovation helps making a very good reputation for a company in the market which means more ability to hook employees with high profiles.

   For portfolio management:
   1. Transparency and collaboration.
   In order to have better information view and more transparency of the projects, a company assign several projects into one portfolio sharing common channels of cooperation and resources. This holds positive impact on decision making and project performance.
   2. Grouping similar projects.
   When a company succeeds to put together the right selection of projects in one portfolio, then it is helping itself to get the maximum amount of profits with the least amount of resources. The projects should have a common area where team are able to work together to accomplish the main goals of the company.

   Project management:
   1. Increasing customer satisfaction.
   The question here is how good management of projects can help in increasing the customer satisfaction? My answer is, it definitely does but in an indirect way. Having better, faster and higher quality work will make the customer happy.
   2. Being more predictable.
   Getting the ability to resolve predicted future problems before they occur.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: On my level, project management comes always first. It is the core of what I do. Innovation management comes second, then portfolio management.

6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: I would recommend using it under certain conditions. It depends on the framework itself. Some frameworks help a lot and make your work much better, yet others might hinder your work instead of facilitating it.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: In theory, it should assist and facilitate the process. Some frameworks are designed without taking into consideration the simplicity or complexity of the structure, they are designed to ensure that the process is abiding with certain rules and regulations and to enforce several steps into these processes. Such frameworks do not accelerate, instead they control.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: Once you start dealing with something in a close manner you will more likely get impacted by it or leave your effect on it. This is a description of the relationship between the team using the framework and the framework itself. They are using it on a daily or weekly basis. They might feel that a change is needed in this framework or might feel a change is needed in the way they are using it. This only happens in a close relationship.

9. Question: Do you currently use a specific framework with your team?

   Answer: Yes, we do. It is not only one specific framework; we use couple of frameworks that help us streamline the processes in certain phases of the project. Honestly, we have made some modifications to some of them to be more fit in our case. I believe they are helpful to a limited extent.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: Yes, they recommend. But it is not something urgent for them. You know when you're delivering good end results you don't worry a lot about the approach you are using. They always seek to enhance the approach but as long as our deliveries are good enough, they do not consider it as an urgent matter. It will definitely become something urgent as the projects get more complicated.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: I don't think they avoid using it, I think they just do not find the right one for their needs. Most of today's projects that are requested by customers take the form of agile projects that require flexibility, simplicity and quickness.
    1. For such cases, no one will choose to have a complexed framework that includes too much features and requires too much time. On the contrary, they do not want to deal as well with a very general framework that add nothing to the process. Again, the integration of more than one thing into a simple form is considered to be a balanced solution that is needed in the market.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer: The framework should be not too complexed and not too general, something balanced and in between in order for us to be able to improve quality and increase quantity.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Mainly end results and final outcomes. This would be a major impact for our business.

Interview Three

- Company 3

- Interviewee profile overview: A civil engineer specialized in structural area with extensive experience of more than 15 years in the industry inside and outside Canada. Highly experienced in leading teams and managing mid and long-term projects.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: Hi Mohamad. You're most welcome and I want to wish you success in your academic journey. Good question but let me first give you a wider look of how I see business processes in general. I have worked for many years in the field and behind the desk, I have worked directly with workers and directly with managers, I worked in Canada and outside Canada. I came after all these years to a conclusion which I want to share with you now. In business, and specifically when talking about processes, you either have a complete cycle of well-integrated concepts or you are no good. That is my opinion, the portfolio that we work on, the project that we run, and anything else are all linked in one way or another. You have to ensure all concepts are well implemented otherwise you will not have the best results.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: Look, if we want to do relations, I would say that the three concepts are related to those three sectors that you are asking about, each in a certain way and to a certain extent. I won't say that things are crystal clear when it comes to building relationships. As you know, in business we try to define things as much as we can, yet we will not be able to sort out everything at all times. So, there are relations between all them to the three sectors you've mentioned. It is up to us to decide on what we need to concentrate on, and what we need to emphasize, depending on the nature of the project and the requirements of the business. This is a challenging part for the management, not to forget that companies are always concerned the most about their sales and how to grab new customers. So, this specific criterion shall determine the amount of emphasis given to a certain relationship.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

Answer: Yes, in some ways. I would not say they are always interrelated, but most of the time they are. Let's divide this in two sections, one is theoretical, and the other is practical. If we want to speak from a theoretical point of view each of them has been recently a separate science that has its own tools, methods, and applications. When you come to the industry and the practical world, you will easily find that there are big relations and dependencies among the three concepts.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer: Innovation management:
   1. Improved productivity and thus increased customer satisfaction. This is because when we establish and innovative culture within the company, the employees will work hard to stay up to the quick pace that innovation culture finds, which in turn leads to more customer satisfaction.
   2. More value and recognition of your brand. This is a big thing that a company can achieve with innovation. It is considered indirect, but it is definitely so important. Innovation is associated with raising the brand value and spreading awareness of company's activities which makes it more recognized by the industry.

   Portfolio management:
   1. Executive management Involvement.
   Good portfolios that have several critical projects tend to attract more the attention of executive and senior management. They got involved in prioritizing and oversighting the details to ensure alignment with their strategies.
   2. More visibility.
   Especially for costs, scope, data and progress, they all become more visible when aligned and collaborated in one portfolio.

   Project management:
   1. Growth and Development.
   You will notice that the team is developing new skills and new approaches while working. It means your team is growing by value if not by size.
   2. Outstanding in the market.
   Good project management practices hold benefits inside your company and in the outside as well. When your teams and practices are special, you will gain the respect of others in the market.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: Innovation management, project management then portfolio management. I don't mean exactly to rank them, but I mean this is how I look towards them in terms of importance.

6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: Yes, definitely I recommend it. I believe that frameworks are designed basically to set out a clear approach to how we should complete certain tasks and achieve goals. Besides it helps promote a culture of commitment and straightforwardness among employees in performing tasks inside the company.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: Frameworks shall maintain three things in my opinion, flexibility, orientation, and acceleration of a certain approach. It might emphasize one over another, but it should cover the three of them in a way or another. Why should we choose to follow certain framework if it did not make our work easier and faster? This is the key thing here.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: The impact is on both. Both of them are heavily impacted in a way or another. As the team using this framework goes more through, they think carefully about each detail and step in it and how does each goal fit into this framework. They may even find that some goals don't fit at all. This process will force the team into thinking deeply about alignment between the goals achieved through this framework and the overall objectives of the business. So, the impact falls on both sides.

9. Question: Do you currently use a specific framework with your team?
   Answer: Not for now. Some previous managers preferred using some frameworks, but I did not find it that helpful in my projects, so I decided not to. I am not against using it, but I didn't find what suits me hundred % or at least eighty %. At the end of the day I do not want to waste my time and my team's time.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: Not really. They are concerned more into end results and final outcomes. The most important thing for them is the sales rate and customer satisfaction. They would not object if we start using a good framework, but unlikely that they will ask for using it or even for changing our approach. It is something that we as a team decide on.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: Maybe they find most of the frameworks deal with one specific concept.
    As project managers, we need to keep an eye on several things at once, that is what makes our work agile and efficient. The three concepts that you are discussing in this interview are of a big importance for us. Project management is the core of our work, innovation management is essential to our projects' success, and portfolio management is something we need to adapt with. So, I do not want to deal with three frameworks each alone. That's one of the major obstacles.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer: A comprehensive framework is all what we need. Comprehensive in the sense of concepts allowing us to take care of more than one thing at once and ensuring the progress in more than one direction. That would be something good at all sections of your question.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Coherency among teams and individuals.

Interview Four

- Company 4

- Interviewee profile overview: Project manager and general contractor specializing in retail wood renovations. His experience includes extending existing retail houses as well as new construction & equipment installation.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: Greetings and welcome Mr. Mohamad. I have to confess that you're working on a good and useful topic and I want to express my interest in following up on the results of you research. I believe you are going to come up with something useful for medium companies like us. For the question, I would say no doubt that the three are of a big importance, yet in different levels. Innovation comes first, the 21st century is the era of innovation. Project management follows as it has to do deeply with every single step that needs to be done in the project, it means it is directly linked to the success of the project. Portfolio management comes last. I believe if your portfolio was not that good you can still survive if the chosen project were successfully completed. It is a tricky thing, they all have to do with the overall success, yet they are ranked in this way. Note that this ranking may differ depending on the company and the nature of the business. There is no one method that applies for all cases. But in general, we can still rank them and relate them to success the way I explained above.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: I cannot define relationships, yet I can explain the impact that each concept might hold. Definitely there is a big impact that happens all the way. And by the way it is good to mention that the three concepts that you are dealing with hold impact on each other, and the three sectors you are asking about also have certain interrelations among each other. So, it is quite tricky to define relationships here. All is related to all; we define how we want things to be throughout the business phases. We decide on what is most important for us and what is the least important. We draw the whole plan for each project, so it is always up to us and to our objectives.
3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

   Answer: Your question falls into two sections. The first is about the interrelationships and the second is about our way to deal with them. I do agree with the first section as a rule. I believe that these three concepts have something in common always. As for the second part of the question, I also agree that we might need to deal with them as one entity, but not when it comes to their

detailed processes. So generally speaking, there are common guidelines between them but when it comes to details each has its own methods and tools to be used.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer: Innovation management:
   1. Reducing turnover.
   One of the big problems that many small and medium sized companies suffer from is the high turnover of their good employees. However, when a company gets its employees to be engaged in new changes, they are going to feel that they represent a real need for the company, and they will less likely leave.
   2. Enabling quick problem-solving manner.
   It comes as a result of providing the employees with new opportunity to look at problems from a new perspective which makes them find new solution much faster.

   Portfolio management:
   1. Better strategic planning and decision making.
   It allows the management to ensure all projects are aligned with their strategy and directed toward achieving the business goals.
   2. Success consistency.
   It increases the success rate for individual projects inside the portfolio.

   Project management:
   1. Enhancing Quality.
   It enhances the quality of the project itself and the portfolio that this project belongs to.
   2. Increasing Quantity.
   As a result of better efficiency, you will find yourself able to increase the quantity of what you do, whether it is a product, service or project. This is also a result of a good resource allocation.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: As I mentioned in my answer to your first question. Innovation has to be first, even for me as a project manager. If you don't ensure innovation at all levels, you will move slowly towards going out of business. After that comes the project management then the portfolio management.
6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: I recommend using one or even multiple frameworks in a way that saves us time and hassle. They need to have clear steps or procedures for managing workflow or running a process for example. Most companies that use frameworks, they use them for core processes and operations.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: For sure it helps. At least this is how I understand the usage of frameworks. Helping and ensuring a fixed direction for a certain approach. A framework is like a steer that works

automatically, it guides us to pass by multiple stations. These stations are just like checkpoints made to ensure we have all the essential needs on a critical journey.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?
   Answer: Every successful company that uses frameworks cares about the impact on the final business objectives. I meant that the framework implemented shall be linked tightly to the business objectives. The performance of the team is just a tool that leads to another objective. So maybe the impact is on the final results of the business and everything else that got impacted is an extra value.

9. Question: Do you currently use a specific framework with your team?

   Answer: Well, yes and no. I mean we designed something, but it is not at the level of a complete framework or full model. It is more like a method that helps ensure facilitation and simplicity among our processes. We use it for some phases of a project and not always.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: Indeed, they do. Mostly in general meetings, they shed the light on the importance of optimizing all processes. Optimization for us is cleaning our operations from any waste and defining the most suitable practice for each situation.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: Well it depends on the company. One of the main things might be the need for agility which is something not supported in many frameworks.
    Another thing might be the weak engagement of wide range of teams inside the company. A framework that brings more than one department or division together for the sake of negotiations and discussions is essential for businesses. The framework that requires only one unique team or individual lacks an important factor.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer:
    1. More engagement. We require at our company a framework that supports more collaboration among different teams and brings them together on one table for sharing, discussing, and negotiating. Any tool or model that helps positive criticism and constructive discussion is of a big value for all our business levels.

    13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Quality of work and quality of outcomes.

Interview Five

- Company 5

- Interviewee profile overview: Experienced Site Engineer with a demonstrated history of working in the construction industry. Skilled in AutoCAD and a group of engineering software. Strong engineering professional with a Master of Science (MSc) focused in Structural Engineering from University of Calgary.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: Hello Mohamad. Thank you for coming and I hope my interview will serve as a good contribution to your research. Generally speaking, the three concepts are essential to any process you need to do. Well, portfolio management is not something that has to do technically within each project's steps but definitely it has a relation in the sense that the chosen projects have to follow a certain strategy, a certain importance ladder, a certain logical methodology, otherwise you'll not achieve the general objectives of your business. Innovation management has become a lifestyle, we need to challenge ourselves, we need to introduce something new that has an added value, and otherwise we will be in the danger zone. What I mean by danger zone is not being able to compete, meaning losing our competitive advantage and thus falling under the risk of going out of business. Once you lose your position in the market it is hard to get it back. Everyone is working hard to take your place. The three concepts represent one main pillar for the success of any company.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: Allow me to ask the question in a different way please. The relation that you are asking about counts for how much contribution does each concept make in each of the three things that you listed in the question. I mean that in my tasks project management counts for almost 70% of what I do, innovation counts for almost 20 to 25%, and portfolio management counts for around 5 to 10% only. The rates will turn all around when we talk about the company's objectives, so we say that innovation is the most, portfolio management comes then, and project management is the last. Project management is more at the mid-level more than being in any other place. As for the industry in general, the three concepts come in equal percentages in my opinion as they all affect the consistency of the businesses in the market.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

   Answer: Definitely they are interrelated. We come to understand this more and more throughout practice. The coherency among the different teams, the dependencies of each team on another, the common areas, the relationships we have all together, all of these will definitely tell that they are some sort of a chain. Not exactly a chain but more like circles with big common areas among

them. Each one of the concepts has its own area and its common area with the two other concepts. At least that is what we are dealing with on a daily basis.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer:
   Innovation management:
   1. Increasing profitability.
   I mean this is so much indirect, but it does exist. Innovation leads directly to more customer attraction, more sales and thus more income at the end of the day.
   2. Opening new partnerships and relationships.
   Throughout innovation, a company will establish new channels with new suppliers, partners or customers. All of these are considered as new fields for the company.

   Portfolio management:
   1. More risk management.
   It increases the ability to lessen or at least balance the risks of the individual projects mainly because you open up the project to sharing resources and more visibility and cooperation.

   Project management:
   1. Better flexibility.
   What I mean by this is the ability to redirect some actions or processes in a different way so if you discover at any stage a smarter direction to take, you can just easily do it. However, when there are no defined steps for managing the project and you need to change something, it might be a mess.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: Innovation management first, it is a concept that needs to be embedded in the two other concepts. Then we have the project management, and last comes the portfolio management.

6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: Neutral. I neither recommend in general nor dis-recommend in general. It always has to do with nature of the framework. How it is going to help me? Why do I need to use it? What phases shall I complete with it? I think the answers of all these determine whether it is good to use it or no.
7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: I am not a big fan of rules and guidelines. I think the managing style of each project manager differs and thus it might not be so helpful to set one road and ask all managers in a company to follow it. Unless this road was flexible and big enough in a way that it encompasses many styles and it shows only the main direction of the approach not the detailed steps of how to do everything.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: Mainly, frameworks affect the performance of the team or individuals who are using it. It is designed initially to help them be guided through the right track all the way from A to Z. The business long term goals shall come after. We cannot measure directly the impact of the framework on the sales or business big objectives however, we can quantify it indirectly by measuring the enhancements happening throughout using the framework.

9. Question: Do you currently use a specific framework with your team?

   Answer: I wouldn't say we are relying on any framework, although we make use of some of them in rare projects within specific phases. But it is not a frequent case for us. My team suggests from time to time trying some frameworks but again I am not satisfied with what is currently used in the market. Most of them are theoretical and could be used the best in the university's labs and classes.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: Yes. For them it is important to have a clearly defined approach for your processes as this is related to good transfer of knowledge between departments and divisions inside the company. The recommendation comes in the shape of organizing data and operations. So, their concern tends more towards how to define things, make it clear, document it, and transfer it to others whenever needed. They believe this ensures sustainability for the business and I do agree with them.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: One of the reasons might be the nature of the framework. Many of them are of a rigid nature and they are not easy to modify or even slightly adjust. This fact makes these frameworks a bit solid and inflexible for us as project managers. I believe this is an important reason that has relation to the final results of the processes.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer: Agile framework. That is all we need. Agility within our system at all levels will help make everything more effective. Agility is needed in parallel with discipline, alignment, and professionalism for sure. Everything else will be indirectly impacted if we make sure agility is taking place in our system.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Consistency and sustainability of success for the projects within the portfolio.

Interview Six

- Company 6

- Interviewee profile overview: Project manager equipped with 10+ years of experience in project management focused on painting for medium and complexed projects inside and outside Toronto. His experience includes project ran for several towers that were built in downtown Toronto. His team ranges between 5 and 25 people depending on the nature and scale of the project.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: Welcome Mohamad and thank you for your efforts in this field. Imagine you have three magnifiers, one for a wide view, another for a closer view, and the third for the closest view. Maybe this is an analogy that helps me explain my understanding of these three concepts. Portfolio management is the wider look, it consists the general projects that the management selects according to company's interests and benefits. The closer magnifier is the innovation management where we need to ensure that those projects are adding a new value to the whole business. The closest one is the project management that is used to optimize project's processes and ensure highest efficiency. So, we got three different yet interrelated levels. The success of each depends on the success of the other to a certain extent. I don't want to appear as if I am setting a static formula or view, but this is how do I see things.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: Answering this question would require first shedding the light on one important thing in the role of a project manager in our industry. It depends on the project itself. Is it large, medium, or small project? There might be multiple project managers distributing tasks and roles.
   In other words, the role involves some tasks of a traditional project manager along with adequate skills and knowledge related to innovation and portfolio management. Besides there are other factors that come as a plus such as strategic planning, strong leadership, a responsible team and many other factors. You can see easily that the three concepts exist in what I have just explained, and thus the interrelation is quite clear among all.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?
   Answer: I agree. Yes, they are interrelated, but to be clearer we're lacking the right tools to ensure sustainable application for all of them. The question is how we can handle them or deal with them as one entity. The problem is not if we agree or not, we do agree, the problem is in the methods and tools that would ensure their sustainability on the long run. Apparently, the construction and building materials industry is seeking more elaboration and effort on the practical side of these concepts. They need to translate words in methods.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer:
   Innovation management:
   1. Boosting staff motivation.
   When the staff is put in a challenging environment, they are going to be motivated. That is one of the main drivers for the employee's motivation.

   Portfolio management:
   1. Compare and contrast.
   With all of your projects grouped in one portfolio, you will be easily able to conduct a comparison approach and figure out where are the contrasts if any. It allows you also to understand the load over each business unit in your company.

   Project management:
   1. Mitigating risk.
   The risk meant here are risk of failing for projects.

   2. Accurate definition of the scope, schedule and budget from the very beginning.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: They are different in terms of concepts and you cannot just rank them from one to three. Project management and innovation may have the same level above portfolio management.
6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: No doubt that frameworks are useful in certain business contexts. The need to give users more flexibility and not tightness. The need to tend toward generality and not details in a sense that they do not have to list exact instructions for processes such as how to do this and that. Instead, it sets a roadmap for completing this job.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: Definitely it should facilitate the process and describe the way of how a team or individual creates, delivers, and run a defined task or approach. In the domain of theory and the domain of practice, the term framework should be used for a broad range of activities and business processes.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: If we look beyond the inputs to the framework and outputs of it to have a deeper look into the bigger outcomes and results, we can then understand much more the impact of this framework. Companies cannot quantify all enhancements and values. Some good values that we add in the company could not be read in numbers. Instead, their values are seen qualitatively. I

think the impact of the framework is of this sort. Maybe the companies are not able to relate the real impact of frameworks to their business performance, but they are able to measure the improvement of their team's performance. Both are impacted but the impact is different.

9. Question: Do you currently use a specific framework with your team?

   Answer: Rarely we do. It is not something we use on daily basis. I wish we had something we can all rely on, but we are not there yet. I am still more into flexibility when it comes to management approach. I follow up with my team on results rather than approaches. We are surviving this way although I believe it is time to streamline all of our processes.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: In our company I don't feel the insistency on this matter. It is rarely discussed as the managerial style for our management is so flexible and thus it is more open for the project manager to choose how to deal with their projects and situations depending on the circumstances.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?
    Answer: Simply because they believe that these frameworks do not solve their problems. At the end of the day companies are entities that have business to run and they are busy searching for what meets their needs and fulfills their requirements. In other words, what these companies need is something direct to the point, a solution that tackles the problem and nothing else.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer: We need something that can support three main things, alignment with strategy, project acceleration and more communication. If we can have a framework that works on these three areas, then I can guarantee that our efficiency will increase by at least 25% from where we are right now.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Allocation of resources and integration of processes where needed.

Interview Seven

- Company 7

- Interviewee profile overview: Civil Engineer with over 10 years of experience in managing building projects. Highly experienced and knowledgeable in construction contracts, cost control, scheduling, quantity surveying and technical drawings.

- Questions and answers

1. Question: Starting with the first question, I would like to ask you about the three main concepts that are the core of my research: project management, portfolio management and innovation management; what does each of them mean to you in terms of business processes?

   Answer: The three are something we need in any business. When it comes to processes, it depends on what kind of process we are talking about. But again, to have a clean, optimized and successful process you need to engage each concept in one way or another. They are important, but still the importance depends heavily on the circumstances. In our industry you have to ensure highest levels possible of project management. We as project managers in the construction and building materials industry are mostly concerned about how we can get our project done within budget and time constraints. We care about innovation; we care about portfolio and project management. It is all important to us in a similar manner. The absence of any of them would negatively affect the end results and accordingly affecting all levels of business. When you fail in your project it is like a snowball, everything is going to be affected in a limited extent.

2. Question: How can you generally relate each of them to your company's objective, your tasks within the company, and your industry (construction and building materials) in general?

   Answer: Innovation is a big title that is being more like a mindset or a lifestyle for everyone. And thus, innovation should exist in all the three sectors. Moving to the other two concepts portfolio management and project management, each one of them is a task that exist in a certain level of the business. They might have relationships, yet they are two different cycles at two different business levels. One is over the other. So, project management comes under the portfolio management. And the personnel who takes care of each are usually different. Although in small and medium sized enterprises the personnel might overlap between more than one department.

3. Question: Do you see these three concepts as interrelated concepts that need to be handled together sometimes or as separate entities that should be treated each alone?

   Answer: I do see them as separate yet interrelated concepts. Separate in the sense that on a deep level you'll find that each one deals with a different side of the business and each one has a different impact. The interrelation is in the continuity that each one would give to the other. Dealing with them as one interrelated entity would help managers in some ways get better results on all business levels.

4. Question: From your point of view as a project manager in the construction and building materials industry, what makes each of these concepts important?

   Answer: Innovation management:
   1. Reduced costs
   In a way or another, innovation helps in optimizing the operations. Optimization means reducing waste and increasing efficiency making huge reduction in costs.

   Portfolio management:
   1. Minimizing overhead.

When resources are shared, teams are collaborating, project plans are clearly discussed and aligned in one place, you are more likely to reduce overhead and bottleneck by 15 to 20%.

Project management:
1. Consistency.
It finds a work style that encourages consistency of communications among staff, suppliers and customers, which means you are having an improved open work environment.
2. Tracking and controlling.
The only way to be able to track progress and keep things moving on schedule and within budget is to follow a well-defined project management approach.

5. Question: Let us assume that the three concepts are put on one scale, how would you rank them in terms of importance for your job?

   Answer: You're asking a project manager, then it has to be project management first. I mean technically we have to worry about how to get our project done according to the plan. Innovation is also important and needs to be ensured in every cycle of the project. Portfolio management has the least impact in my opinion.

6. Question: What is your opinion on using business frameworks in general and would you recommend using it?

   Answer: Useful and good for many businesses. Companies might even build their own framework depending on their needs and culture. General, detailed or agile framework are all types that can be used for the same purpose. I recommend using it after doing a thorough assessment for the business needs.

7. Question: Does abiding to a framework facilitate or complicate the process in your opinion?

   Answer: It helps a lot. Usually managers provide their teams with a business framework, so they can work efficiently on a group and individual level. It is always important to look whether this framework comprises: roles, tools, measures and incentives. These are important to drive the process smoothly.

8. Question: Do frameworks have more impact on organizing teams and raising their performances, or on the final outcomes and sales of the company?

   Answer: We all want growth and we are all concerned about how we can measure the impact of any change we do. Companies need growth to sustain in the market and to satisfy their shareholders. But the context in which growth can be measured is evolving rapidly. Sales and numbers are still the most important factor to measure but we are seeing new factors being part of the game. The impact needs always to be attached to the strategic goals of the companies otherwise it might not be given big importance. And because of this the frameworks impact is measured in terms of team performance but always assessed in terms of business objectives.

9. Question: Do you currently use a specific framework with your team?

Answer: Sometimes we double check our work by applying it to certain frameworks. So yes, sometimes and no, sometimes. Looking into what exists nowadays in the market we see a lack of a reliable framework that could fit the best in our industry.

10. Question: Does your management recommend using frameworks to enhance your operations and processes? Or they are only concerned about end results?

    Answer: Definitely yes. When you have a management working very close with the teams and getting involved into details then you'll have to listen to such recommendations and involvements. They recommend using defined approaches and enhancing it every time. They have a detailed oriented style that keeps them into such matters.

11. Question: In your opinion, why do some companies avoid using frameworks in the context of project, portfolio and innovation management?

    Answer: In my opinion many companies urge its teams to use well defined framework unless the usage hinders or slows down the progress. There should be a balance between quality on one hand and time on the other hand. For us time is money. All companies need high quality and efficient processes but not one needs to be stuck in closed loops of rules and regulations. So, I think the balance between these two things might keep some companies away from using some frameworks.

12. Question: How does an ideal framework look like in terms of your tasks as a manager, your team's performance, and your company's business objectives?

    Answer: Scale wise, it needs to be useful at a small and medium scales. Whether small or medium was the size of the team, the project, or even the company, the framework should fit in all cases.

13. Question: Briefly and in one sentence if possible, in what sense would such a framework help you and your company?

    Answer: Alignment of operational processes with business strategic plan.

APPENDIX II: GROUP DISCUSSIONS

- Company 3 – A team of three members (A., W. and S.)

- **Mohamad (Moderator):** Hello all and thank you for coming today. I really appreciate the time you will dedicate to attend this discussion that will add a big value to the research I am working on. I believe that your profiles and experiences make you high profiled professionals who are able to positively contribute to this kind of researches.
  Allow me first to introduce the topic then start with the first subject that I would like to discuss with you guys. Our research is aiming at designing a new business framework that merge the concepts of project management, portfolio management and innovation management. In other words, we have noticed that the industry is lacking a professional model that helps companies in the industry of construction and building materials to follow an approach the supports their business on these three levels (project, portfolio and innovation management). So, we are understanding why employees are not satisfied with the current frameworks, what are the characteristics of a good framework in their opinion, and how would such frameworks impact their operations and processes.
  Our discussion today will cover three main areas, the impact of the three concepts (project, portfolio and innovation management) on your tasks, your opinion of the current frameworks being used nowadays and the characteristics of an ideal useful framework from you point of view.
  Starting with the first subject which is the impact of the three concepts on your work and how do you link it to your tasks, in terms of importance and influence.

- **S.:** Basically, when we are assigned as a team to a new project, the first thing to do is to initiate a meeting for deeply understanding the customer's needs and requirements and for brainstorming the best approach to follow for this project.

- **A.:** Exactly, and one thing to add here is that when we run such meetings, we start building a blueprint of how we will approach the project. In other words, we start building indirectly some sort of model or framework for the solution.

- **W.:** Right, even if we did not call it a framework, but it is indeed. At this level we start building the infrastructure of the solution. So, we start dealing with the three levels that you are asking about. All of them are part of our discussions at this level.

- **Mohamad (Moderator):** The three of them? I mean you start tackling the three concepts at project, portfolio and innovation?

- **A.:** Yes, the three. We need to build an approach to solve a complex problem or to execute a certain project, it means we need to worry about how we can introduce something new in this approach and how can we execute it. This means we have tackled innovation and project management.

- **W.:** Well, I would say the three, but with different emphasis. As he previously said, the least we deal with is portfolio management. Although it is one of the most things that the management follow up on it with us. They want to make sure this project aligns with our portfolio strategy.

- **Mohamad (Moderator):** Portfolio management is what management care about the most?

- **S.:** Yes, one of the most things that they worry about. In the portfolio strategy there are several things that have direct impact on the final business performance and have to do as well with the positioning of the business. For example, some portfolios are designed to accept only agile projects for certain level of customers (high class) in certain areas of the cities. We need to make sure we are working in line with this strategy.

- **Mohamad (Moderator):** That is quite interesting. So, this means you have little or no control on the type of projects that need to fall into certain portfolios, right? It is all defined by the mid-level management.

- **W.:** Almost yes, we can give our opinion, we can try to push toward accepting a certain project into our portfolio or rejecting it. This is all we can do, trying to affect or influence the decision maker. But, at last the decision is not on our level.

- **A.:** The two-ways relationship between us as team members and the management has a big importance in determining the direction of our work. The project manager plays often the role of a liaison between us and the top management. This interrelation among all of us makes that three concepts existing in every phase of the work.

- **Mohamad (Moderator):** In what sense does your coordination keeps the concepts existing in each phase?

- **S.:** We mean by this that some concepts are basically the task of the upper management and not ours, like portfolio management. But our close coordination with them helps make the treatment of this concept clearer and smoother for both of us.

- **Mohamad (Moderator):** And is the opposite correct as well?

- **S.**: Definitely, project management is more into our circle but again the close coordination between all levels will make it much easier and efficient.

- **Mohamad (Moderator):** Moving to the second subject to be discussed today, what is your opinion of the frameworks currently existing and used in the market?

- **W.:** In the past year, 2017, we made a big effort as a team looking into the existing frameworks and whether we were able to rely on one of them for running our operations and processes. This was upon the request of the project manager asking us to define one approach for our projects that has a solid and wide base to support all the concepts that we deal, on one hand, and having a flexible boundaries that are able to accommodate the different needs and requirements of the customer and their projects, on the other hand, but honestly we did not find one approach that perfectly fits in such a context.

- **A.:** Mostly they do not support our business agility in order to enable a deep focus at a flexible scale that can work with different project sizes. Whatever the nature of the customer is, their projects vary in size, quality, and type.

- **W.:** It is not the absence of agility that makes the big problem for us. I do not think so. It is more about the inability to demystify the directions and apply slight changes to the workflow. The way that this framework allows us to present the concept in the simplest, most effective, most Agile way. This combination is important for us as a team running this project. Whether the project objective is as grand as building a tower from scratch or as modest as applying some renovations to a small location, the framework should provide the guidance you need to make it a reality.

- **Mohamad (Moderator):** What else do you think of the existing frameworks?

- **S.:** I think that what we have found throughout our search that there is a theoretical approach embedded in the frameworks rather than a practical approach. Maybe the founders or builders of these frameworks came mostly from an academic background. We've rarely found a framework that is built by large companies.

- **Mohamad (Moderator):** Do you think if those large companies developed an approach or framework for themselves, they will release it in the market for the use of other companies?
- **S.:** They will not do this for sure. But I mean there are some research centers who are close to the practical world that might be interested in such products. They might release them in the market as commercial products.

- **A.:** Exactly, the commercial products were not something that we cover throughout our previous search.

- **Mohamad (Moderator):** You have mentioned previously agility and simplicity. Do they have a link or relation to unidimensional and multidimensional frameworks? I mean does your discussion has a relation with the frameworks that deal with only one concept, like innovation alone or portfolio management alone, and the multidimensional frameworks that treat more than one concept at the same time?

- **W.:** Actually, that is another matter to be raised in the same context. The integration, I would call it, that the current frameworks lack, will cause us a delay or maybe inability to control the whole thing in one central place. Integration can give us this central panel to control the operations, the way we want, from one place.

- **A.:** For me, integration is an engine that empowers the framework and enables it to provide incremental delivery of project value in different contexts. The key word may reside in any of the framework phases, yet the main purpose will continuously be to produce a validated and controlled approach that will lead the operations, to end up into high quality results, in line with the main strategy.

- **S.:** That is absolutely right. The approach should position the operations and the users within a dynamic and strategically aligned portfolio.

- **Mohamad (Moderator):** And how much do you think that the circumstances of the project itself play an important role in determining the efficiency of the framework?

- **A.:** To a big extent.

- **W.:** The nature of the project and the surrounding circumstances might really redirect the whole compass to a different place. They play a vital role.

- **A.:** Another thing to add is that we, as a team, consider the surrounding circumstance that come with the project at the heart of the methodology that we will choose to we deal with it. It affects the time, resources, budget, quality and other factors. Even the way we connect with the customer on one side and our management on the other side might get affected. It is a key element that needs to be taken into consideration.

- **Mohamad (Moderator):** Let's move into the third and last matter to discuss for today. In my research, and after the data collection and analysis phase, I will be building a new framework that takes into consideration all the needs and requirements that I have studied. I would like to listen from you, as team members, about the essential factors that you want in a framework to consider it a good fit for your tasks and operations.

- **W.:** Looking into the current approaches for the existing business models, we can draw some conclusions that lead me to design a skeleton of the ideal framework. You should focus the most on creating an attractive approach that ensures value proposition for the team, the performance, and the end results. Enriching the existing approach might not be helpful in your situation. Instead, you need either to conduct dramatical changes or build something from scratch.

- **S.:** My forecasts that I have built over the previous search that we made last year show clearly that well-design integrity among several concepts is becoming the key success factor for our projects. This is the reason why the company should take action towards changing their business mentality in terms of operations management.

- **A.:** I agree with that. In addition, there should be an emphasis as well on the collaboration and communication among the different teams, in a way that the framework should not be operating on the traditional channels, but it should find new channels to bring teams together. These are additional important elements that count big time in the final outcomes of the company.

- **Mohamad (Moderator):** What about portfolio management? How can it fit in such a framework from your point of view?

- **S.:** Create a road that keeps every single step of our operations aligned with the portfolio guidelines that were defined in the plan. I am not sure how this could be done, but I am quite sure that it is strictly needed. And by the end of the day if this new framework is turned into automated software, that would be more awesome. Some might call it a smart framework.

- **W.:** Frameworks are a trend that will undoubtedly grow much more in the upcoming years. We need to adapt to such changes that are resulting from a bigger phenomenon in this world. Things are tending to be clearly defined into approaches. Look at project management, look at business analysis, everything else is getting to be more defined, organized and controlled. This will enhance the ways of measuring success.

- **A.:** One more thing that I want to highlight also is the term universality. I am not sure if the framework needs to fit in one kind of business but there should be some sort of universality in a sense that it can be used in different contexts whether in one industry or several industries.

- **Mohamad (Moderator):** A big thank you to all of you guys for today's session. Honestly it was beneficial and for sure it is going to enrich my data and give me a wide horizon on how the framework will look like. I would like to stay in touch with you and keep you posted on the progress of this research. Thank you again and wish you all success in your careers and your own life.

- **A., W. and S.:** Thank you Mohamad

APPENDIX III: SURVEY

Table 12: Survey

#	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	In terms of business processes: project, portfolio and innovation management are interrelated concepts.	38	27	11	4	0
2	Using business frameworks is important for making the operations and processes more efficient.	55	20	4	1	0
3	Business frameworks impacts the performance of the teams who are using it more than impacting the final outcomes of the business.	24	39	5	7	5
4	Many companies avoid using frameworks because they believe it consumes time and effort more than when avoiding it.	30	22	7	12	9
5	A new framework that supports integration, flexibility, and universality would be a good option for companies who currently avoid using frameworks.	47	28	2	2	1

APPENDIX IV: OBSERVATION

- Company 3

Table 13: Observation

#	Observation	Findings
1	Announcement, initiation and kick-off meeting.	The project manager took the lead to explain about the background of the project, and why did the management assign them to run this project. It was an official meeting where he set the timing of the second meeting to discuss deeply the planning and rest of phases.
2	Planning phase / Portfolio alignment (Project manager instructions and guidelines).	In this meeting, there was an emphasis on aligning the execution of this project with its portfolio strategy. The project belongs to a portfolio set that contains agile projects that are sponsored by high profiled clients.
3	Framework / Approach selected.	There wasn't a clear framework that defines how the project shall move and how to ensure best innovation and portfolio practices. Instead, it was discussed to follow up on it manually.
4	Assigning tasks and roles.	There was an overlap in the tasks assigned among the team.
5	Decision making process (Project manager approval).	It was tightly attached to the project manager where the team has little room for decision making.
6	Coordination among the team and follow up process.	It is done through regular and one-to-one meetings whenever needed.

APPENDIX V: DATA TREATMENT COVERAGE

We used NVIVO to treat and analyze all collected data in order to figure out themes and relations regarding the four below matters.

- Matter one:

The participants recognition and understanding of the three concepts project, portfolio, and innovation management and what this can tell us about their direct experience, level of academic education, business mentality and style of work.

- Matter two:

The participants point of view and general assessment of the current situation (in the industry and their company) in terms of using frameworks, its importance and impact.

- Matter three:

The participants enthusiasm and their company's readiness towards using frameworks so that we can better understand how they would adapt our new framework.

- Matter four:

The participants understanding of the weaknesses and strengths of current frameworks in a sense that helps us develop our new framework.

Matter one

<Internals\\Group Discussion Transcript> - § 6 references coded [5.43% Coverage]

Reference 1 - 0.68% Coverage

We need to build an approach to solve a complex problem or to execute a certain project

Reference 2 - 0.35% Coverage

The least we deal with is portfolio management

References 3-4 - 0.47% Coverage

Portfolio management is what management care about the most?

Reference 5 - 2.94% Coverage

In the portfolio strategy there are several things that have direct impact on the final business performance and have to do as well with the positioning of the business. For example, some portfolios are designed to accept only agile projects for certain level of customers (high class) in certain areas of the cities. We need to make sure we are working in line with this strategy.

Reference 6 - 0.99% Coverage

Create a road that keeps every single step of our operations aligned with the portfolio guidelines that were defined in the plan.

<Internals\\Interviews Transcripts> - § 21 references coded [4.55% Coverage]

References 1-2 - 0.20% Coverage

Innovation management is essential to the company's success, without innovation companies cannot compete in the market.

References 3-6 - 0.55% Coverage

Portfolio management is more treated on a scale higher than project management, it is more to help assess the priorities of the projects and what projects make more sense for us. Project management goes more into streamlining the processes of achieving something, what is step A, B and C and who is in charge of each one.

References 7-8 - 0.59% Coverage

Increasing competitive advantage. This is essential for any business. Maintaining innovation can put you on the top of your competitors in the market. Also, it is important to mention here that companies need to keep an eye on the performance of their competitors and whether their competitors are coming up with new ideas or products or not.

Reference 9 - 0.32% Coverage

Maximizing resources. I mean by this the ability to balance and apply better deployment of your resources (mainly funds and staff) which accordingly leads to higher project success rate.

Reference 10 - 0.63% Coverage

1. Ensuring effective management for projects.

Simply because when we follow best practices, we can avoid many problems and smoothly move on with the project.

2. Ability to overcome problems quickly. Streamlined and clean process helps the team in finding the solution or the work-around for any obstacle. When things are clear and defined, the riddle is solved.

References 11-12 - 0.45% Coverage

Project management is something that made my life easier. Yes, this is true. It is an essential requirement for successfully completing any project, without it you would be losing time, money and effort while achieving nothing. That is what I care the most about.

References 13-16 - 1.13% Coverage

Well portfolio management is not something that has to do technically within each project's steps but definitely it has a relation in the sense that the chosen projects have to follow a certain strategy, a certain importance ladder, a certain logical methodology, otherwise you'll not achieve the general objectives of your business. Innovation management has become a lifestyle, we need to challenge ourselves, we need to introduce something new that has an added value otherwise we will be in the danger zone. What I mean by danger zone is not being able to compete meaning losing our competitive advantage and thus falling under the risk of going out of business.

References 17-20 - 0.49% Coverage

Portfolio management is the wider look, it consists the general projects that the management selects according to company's interests and benefits. The closer magnifier is the innovation management where we need to ensure that those projects are adding a new value to the whole business.

Reference 21 - 0.20% Coverage

The closest one is the project management that is used to optimize project's processes and ensure highest efficiency.

Matter two

<Internals\\Group Discussion Transcript> - § 3 references coded [4.55% Coverage]

Reference 1 - 1.09% Coverage

You should focus the most on creating an attractive approach the ensures value proposition for the team, the performance, and the end results.

Reference 2 - 1.83% Coverage

There should be an emphasis as well on the collaboration and communication among the different teams in a way that the framework should not be operating on the traditional channels, but it should find new channels to bring teams together.

Reference 3 - 1.64% Coverage

I am not sure if the framework needs to fit in one kind of business but there should be some sort of universality in a sense that it can be used in different contexts whether in one industry or several industries.

<Internals\\Interviews Transcripts> - § 75 references coded [32.85% Coverage]

Reference 1 - 0.25% Coverage

Those three concepts are meant to organize and streamline the processes in any business, or in other words they are found to optimize the processes.

Reference 2 - 0.41% Coverage

They are highly emphasized in today's world. All businesses are now concerned about how to ensure the three of them in their operations but still the methods, styles and commitment differs from company to company and from manager to manager.

References 3-4 - 0.73% Coverage

They are interrelated big time. The three concepts represent in a certain way a multi cyclic chain that has dependencies in many sides of it. Specifically, portfolio and project management, the have many things in common. And innovation should fall into both of them or in other words represent the theme for both of them. In our company we emphasize the coherency among the personnel who are looking after each of these areas.

Reference 5 - 0.32% Coverage

Maximizing resources. I mean by this the ability to balance and apply better deployment of your resources (mainly funds and staff) which accordingly leads to higher project success rate.

Reference 6 - 0.62% Coverage

1. Ensuring effective management for projects.

Simply because when we follow best practices, we can avoid many problems and smoothly move on with the project.

2. Ability to overcome problems quickly.

Streamlined and clean process helps the team in finding the solution or the work-around for any obstacle. When things are clear and defined, the riddle is solved.

Reference 7 - 0.23% Coverage

I would rank project management in the first place, innovation management in the second place, and the last is portfolio management.

Reference 8 - 0.33% Coverage

Frameworks are considered important to businesses since they serve as defined guideline to achieving certain process, goal, or situation. I like and recommend using it for teams and individuals.

Reference 9 - 0.16% Coverage

The framework should exist to facilitate, smoothen, and accelerate the approach of any operation.

Reference 10 - 0.56% Coverage

Both matters are related in one way or another. I mean frameworks have impact on both matters one in a direct way and on the other in an indirect way. The team deals with the framework directly, so the impact should be direct. And if the performance of the team is impacted definitely it will affect the final business outcomes.

Reference 11 - 0.55% Coverage

What is essentially needed is a framework that allows us to deal with more one concept at the same time on a basis of flexibility, precision and professionalism. One roadmap that can help us manage our projects while ensuring innovation and meeting our portfolio strategy. Something like this would be awesome and useful.

Reference 12 - 0.11% Coverage

It helps in lifting our key performance indicators on all levels.

Reference 13 - 0.39% Coverage

Portfolio management and innovation management are also important but come in the second level. Without good management for your project you'll have nothing to improve, and you'll have a failure portfolio by the end of the day.

Reference 14 - 0.97% Coverage

At the planning phase, you have a good room for introducing new ideas and being innovative as much as you can. After that things will take a static streamline in accordance to what have been planned. While working on my projects, I need also to align with the general policy of the portfolio that my project belongs to. Each portfolio has certain guideline and direction that applies to all its projects, but it will remain general and will not control the detailed process of the project. Innovation management is like the umbrella that belongs to all of these levels.

Reference 15 - 0.31% Coverage

I believe there is a strong relationship that brings all these concepts together. Not to forget that the success of each of them depends on the other indirectly, and sometimes directly.

Reference 16 - 0.68% Coverage

1. Optimizing business efficiency

As you know when a company decides to move forward with innovation it has to improve the core operations and engage its employees which will help streamline all its internal processes.

2. Hooking and recruiting top talents.

Innovation helps making a very good reputation for a company in the market which means more ability to hook employees with high profiles.

Reference 17 - 1.08% Coverage

1. Transparency and collaboration.

In order to have better information view and more transparency of the projects, a company assign several projects into one portfolio sharing common channels of cooperation and resources. This holds positive impact on decision making and project performance.

2. Grouping similar projects.

When a company succeeds to put together the right selection of projects in one portfolio, then it is helping itself to get the maximum amount of profits with the least amount of resources. The projects should have a common area where team are able to work together to accomplish the main goals of the company.

Reference 18 - 0.64% Coverage

1. Increasing customer satisfaction.

The question here is how good management of projects can help in increasing the customer satisfaction? My answer is, it definitely does but in an indirect way. Having better, faster and higher quality work will make the customer happy.

2. Being more predictable.

Getting the ability to resolve predicted future problems before they occur.

Reference 19 - 0.22% Coverage

Project management comes always first. It is the core of what I do. Innovation management comes second, then portfolio management.

Reference 20 - 0.62% Coverage

In theory, it should assist and facilitate the process. Some frameworks are designed without taking into consideration the simplicity or complexity of the structure, they are designed to ensure that the process

is abiding with certain rules and regulations and to enforce several steps into these processes. Such frameworks do not accelerate, instead they control.

Reference 21 - 0.28% Coverage

The framework should be not too complexed and not too general, something balanced and in between in order for us to be able to improve quality and increase quantity.

Reference 22 - 0.06% Coverage

Mainly end results and final outcomes.

Reference 23 - 0.62% Coverage

In business, and specifically when talking about processes, you either have a complete cycle of well-integrated concepts or you are no good. That is my opinion, the portfolio that we work on, the project that we run, and anything else are all linked in one way or another. You have to ensure all concepts are well implemented otherwise you not have the best results.

Reference 24 - 0.24% Coverage

I would say that the three concepts are related to those three sectors that you are asking about, each in a certain way and to a certain extent.

Reference 25 - 0.16% Coverage

Yes, In some ways. I would not say they are always interrelated, but most of the time they are.

References 26-27 - 0.51% Coverage

If we want to speak from a theoretical point of view each of them has been recently a separate science that has its own tools, methods, and applications. When you come to the industry and the practical world, you will easily find that there are big relations and dependencies among the three concepts.

Reference 28 - 1.02% Coverage

1. Improved productivity and thus increased customer satisfaction. This is because when we establish and innovative culture within the company the employees will work hard to stay up to the quick pace that innovation culture finds which in turn leads to more customer satisfaction.

2. More value and recognition of your brand. This is a big thing that a company can achieve with innovation. It is considered indirect, but it is definitely so important. Innovation is associated with raising the brand value and spreading awareness of company's activities which makes it more recognized by the industry.

Reference 29 - 0.70% Coverage

1. Executive management Involvement.

Good portfolios that have several critical projects tend to attract more the attention of executive and senior management. They got involved in prioritizing and oversighting the details to ensure alignment with their strategies.

2. More visibility.

Especially for costs, scope, data and progress, they all become more visible when aligned and collaborated in one portfolio

Reference 30 - 0.67% Coverage

1. Growth and Development.

You will notice that the team is developing new skills and new approaches while working. It means your team is growing by value if not by size.

2. Outstanding in the market.

Good project management practices hold benefits inside your company and in the outside as well. When your teams and practices are special, you will gain the respect of others in the market.

Reference 31 - 0.29% Coverage

Innovation management, project management then portfolio management. I don't mean exactly to rank them, but I mean this is how to I look towards them in terms of importance.

Reference 32 - 0.50% Coverage

Yes, definitely I recommend it. I believe that frameworks are designed basically to set out a clear approach to how we should complete certain tasks and achieve goals. Besides it helps promote a culture of commitment and straightforwardness among employees in performing tasks inside the company.

Reference 33 - 0.37% Coverage

Frameworks shall maintain three things in my opinion, flexibility, orientation, and acceleration of a certain approach. It might emphasize one over another, but it should cover the three of them in a way or another.

Reference 34 - 0.82% Coverage

The impact is on both. Both of them are heavily impacted in a way or another. As the team using this framework go more through, they think carefully about each detail and step in it and how does each goal fit into this framework. They may even find that some goals don’t fit at all. This process will force the team into thinking deeply about alignment between your goals achieved through this framework and the overall objectives of the business. So, the impact falls on both sides.

Reference 35 - 0.33% Coverage

A comprehensive framework is all what we need. Comprehensive in the sense of concepts allowing us to take care of more than one thing at once and ensuring the progress in more than one direction.

Reference 36 - 0.07% Coverage

Coherency among teams and individuals.

Reference 37 - 0.34% Coverage

I mean that in my tasks project management counts for almost 70 % of what I do, innovation counts for almost 20 to 25 %, and portfolio management counts for around 5 to 10 % only.

Reference 38 - 0.31% Coverage

The rates will turn all around when we talk about the company's objectives, so we say that innovation is the most, portfolio management comes then, and project management is the last.

Reference 39 - 0.52% Coverage

Definitely they are interrelated. We come to understand this more and more throughout practice. The coherency among the different teams, the dependencies of each team on another, the common areas, the relationships we have all together, all of these will definitely tell that they are some sort of a chain.

Reference 40 - 0.69% Coverage

1. Increasing profitability.

I mean this is so much indirect, but it does exist. Innovation leads directly to more customer attraction, more sales and thus more income at the end of the day.

2. Opening new partnerships and relationships.

Throughout innovation, a company will establish new channels with new suppliers, partners or customers. All of these are considered as new fields for the company.

Reference 41 - 0.37% Coverage

1. More risk management.

It increases the ability to lessen or at least balance the risks of the individual projects mainly because you open up the project to sharing resources and more visibility and cooperation.

Reference 42 - 0.55% Coverage

1. Better flexibility.

What I mean by this is the ability to redirect some actions or processes in a different way so if you discover at any stage a smarter direction to take, you can just easily do it. However, when there are no defined steps for managing the project and you need to change something, it might be a mess.

Reference 43 - 0.30% Coverage

Innovation management first, it is a concept that needs to be embedded in the two other concepts. Then we have the project management, and last comes the portfolio management.

Reference 44 - 0.74% Coverage

Mainly, frameworks affect the performance of the team or individuals who are using it. It is designed initially to help them be guided through the right track all the way from A to Z. The business long term goals shall come after. We cannot measure directly the impact of the framework on the sales or business big objectives however, we can quantify it indirectly by measuring the enhancements happening throughout using the framework.

Reference 45 - 0.14% Coverage

Consistency and sustainability of success for the projects within the portfolio.

Reference 46 - 0.98% Coverage

I would say no doubt that the three are of a big importance, yet in different levels. Innovation comes first, the 21st century is the era of innovation. Project management follows as it has to do deeply with every single step that needs to be done in the project, it means it is directly linked to the success of the project. Portfolio management comes last. I believe if your portfolio was not that good you can still survive if the chosen project were successfully completed. It is a tricky thing, they all have to do with the overall success, yet they are ranked in this way.

Reference 47 - 0.61% Coverage

I cannot define relationships, yet I can explain the impact that each concept might hold. Definitely there is a big impact that happens all the way. And by the way it is good to mention that the three concepts that you are dealing with hold impact on each other, and the three sectors you are asking about also have certain interrelations among each other.

Reference 48 - 0.90% Coverage

1. Reducing turnover.

One of the big problems that many small and medium sized companies suffer from is the high turnover of their good employees. However, when a company gets its employees to be engaged in new changes, they are going to feel that they represent a real need for the company, and they will less likely leave.

2. Enabling quick problem-solving manner.

It comes as a result of providing the employees with new opportunity to look at problems from a new perspective which makes them find new solution much faster.

Reference 49 - 0.48% Coverage

1. Better strategic planning and decision making.

It allows the management to ensure all projects are aligned with their strategy and directed toward achieving the business goals.

2. Success consistency

It increases the success rate for individual projects inside the portfolio.

Reference 50 - 0.58% Coverage

1. Enhancing Quality.

It enhances the quality of the project itself and the portfolio that this project belongs to.

2. Increasing Quantity.

As a result of better efficiency, you will find yourself able to increase the quantity of what you do whether it is a product, service or project. This is also a result of a good resource allocation.

Reference 51 - 0.39% Coverage

Innovation has to be first, even for me as a project manager. If you don't ensure innovation at all levels, you will move slowly towards going out of business. After that comes the project management then the portfolio management.

Reference 52 - 0.31% Coverage

They need to have clear steps or procedures for managing workflow or running a process, for example. Most companies that use frameworks, they use it for core processes and operations.

Reference 53 - 0.60% Coverage

For sure it helps. At least this is how do I understand the usage of frameworks. Helping and ensuring a fixed direction for a certain approach. A framework is like a steer that works automatically, it guides us to pass by multiple stations. These stations are just like checkpoints made to ensure we have all the essential needs on a critical journey.

Reference 54 - 0.66% Coverage

Every successful company that uses frameworks cares about the impact on the final business objectives. I meant that the framework implemented shall be linked tightly to the business objectives. The performance of the team is just a tool that leads to another objective. So maybe the impact is on the final results of the business and everything else that got impacted is an extra value.

Reference 55 - 0.50% Coverage

We require at our company a framework that supports more collaboration among different teams and brings them together on one table for sharing, discussing, and negotiating. Any tool or model that helps positive criticism and constructive discussion is of a big value for all our business levels.

Reference 56 - 0.07% Coverage

Quality of work and quality of outcomes.

Reference 57 - 0.20% Coverage

The closest one is the project management that is used to optimize project's processes and ensure highest efficiency.

Reference 58 - 0.73% Coverage

The role involves some tasks of a traditional project manager along with adequate skills and knowledge related to innovation and portfolio management. Besides there are other factors that come as a plus such as strategic planning, strong leadership, a responsible team and many other factors. You can see easily that the three concepts exist in what I have just explained, and thus the interrelation is quite clear among all.

Reference 59 - 0.30% Coverage

1. Boosting staff motivation.

When the staff is put in a challenging environment, they are going to be motivated. That is one of the main drivers for the employee’s motivation

Reference 60 - 0.45% Coverage

1. Compare and contrast.

With all of your projects grouped in one portfolio, you will be easily able to conduct a comparison approach and figure out where are the contrasts if any. It allows you also to understand the load over each business unit in your company.

Reference 61 - 0.27% Coverage

1. Mitigating risk.

The risk meant here are risk of failing for projects.

2. Accurate definition of the scope, schedule and budget from the very beginning.

Reference 62 - 0.57% Coverage

No doubt that frameworks are useful in certain business contexts. The need to give users more flexibility and not tightness. The need to tend toward generality and not details in a sense that they do not have to list exact instructions for processes such as how to do this and that. Instead, it sets a roadmap for completing this job.

Reference 63 - 0.50% Coverage

Definitely it should facilitate the process and describes the way of how a team or individual creates, delivers, and run a defined task or approach. In the domain of theory and the domain of practice, the term framework should be used for a broad range of activities and business processes.

Reference 64 - 0.49% Coverage

We need something that can support three main things, alignment with strategy, project acceleration and more communication. If we can have a framework that works on these three areas, then I can guarantee that out efficiency will increase by at least 25 % from where we are right now.

Reference 65 - 0.11% Coverage

Allocation of resources and integration of processes where needed.

Reference 66 - 0.57% Coverage

They are important, but still the importance depends heavily on the circumstances. In our industry you have to ensure highest levels possible of project management. We as project managers in the construction and building materials industry are mostly concerned about how we can get our project done within budget and time constraints.

Reference 67 - 0.25% Coverage

Separate in the sense that on a deep level you'll find that each one deals with a different side of the business and each one has a different impact.

Reference 68 - 0.34% Coverage

The interrelation is in the continuity that each one would give to the other. Dealing with them as one interrelated entity would help managers in some ways get better results on all business levels.

Reference 69 - 0.30% Coverage

1. Reduced costs

In a way or another, innovation helps in optimizing the operations. Optimization means reducing waste and increasing efficiency making huge reduction in costs.

Reference 70 - 0.40% Coverage

Portfolio management:

1. Minimizing overhead.

When resources are shared, teams are collaborating, project plans are clearly discussed and aligned in one place, you are more likely to reduce overhead and bottleneck by 15 to 20%.

Reference 71 - 0.62% Coverage

1. Consistency.

It finds a work style that encourages consistency of communications among staff, suppliers and customers which means you are having an improved open work environment.

2. Tracking and controlling.

The only way to be able to track progress and keep things moving on schedule and within budget is to follow a well-defined project management approach.

Reference 72 - 0.46% Coverage

it has to be project management first. I mean technically we have to worry about how to get our project done according to the plan. Innovation is also important and needs to be ensured in every cycle of the project. Portfolio management has the least impact in my opinion.

Reference 73 - 0.03% Coverage

It helps a lot.

Reference 74 - 0.09% Coverage

These are important to drive the process smoothly.

Reference 75 - 0.30% Coverage

It needs to be useful at a small and medium scales. Whether small or medium was the size of the team, the project, or even the company, the framework should fit in all cases.

Matter three

<Internals\\Interviews Transcripts> - § 12 references coded [4.67% Coverage]

Reference 1 - 0.64% Coverage

Actually, we have built our own approach. It is a simple model, it is not that complicated, but I mean we have designed something based on our internal learnt lessons and best practices. We had to do this as didn't find what perfectly meets our needs and requirements. We always look forward toward having something new, either modifying this one or using a totally new one.

Reference 2 - 0.39% Coverage

If you mean our direct management then my answer is yes, they do recommend using frameworks and they emphasize documenting all the processes, lessons learnt, and the best practices that we do. It is something essential for them.

References 3-4 - 0.48% Coverage

Yes, we do. It is not only one specific framework; we use couple of frameworks that help us streamline the processes in certain phases of the project. Honestly, we have made some modifications to some of them to be more fit in our case. I believe they are helpful to a limited extent.

Reference 5 - 0.65% Coverage

Yes, they recommend. But it is not something urgent for them. You know when you're delivering good end results you don't worry a lot about the approach you are using. They always seek to enhance the approach but as long as our deliveries are good enough, they do not consider it as an urgent matter. It will definitely become something urgent as the projects get more complicated.

Reference 6 - 0.80% Coverage

Yes. For them it is important to have a clearly defined approach for your processes as this is related to good transfer of knowledge between departments and divisions inside the company. The recommendation comes in the shape of organizing data and operations. So, their concern tends more towards how to define things, make it clear, document it, and transfer it to others whenever needed. They believe this ensures sustainability for the business and I do agree with them.

Reference 7 - 0.52% Coverage

Agile framework. That is all we need. Agility within our system at all levels will help make everything more effective. Agility is needed in parallel with discipline, alignment, and professionalism for sure. Everything else will be indirectly impacted if we make sure agility is taking place in our system.

Reference 8 - 0.15% Coverage

I recommend using one or even multiple frameworks in a way that saves us time and hassle.

Reference 9 - 0.40% Coverage

Indeed, they do. Mostly in general meetings, they shed the light on the importance of optimizing all processes. Optimization for us is cleaning our operations from any waste and defining the most suitable practice for each situation.

Reference 10 - 0.50% Coverage

Useful and good for many businesses. Companies might even build their own framework depending on their needs and culture. General, detailed or agile framework are all types that can be used for the same purpose. I recommend using it after doing a thorough assessment for the business needs.

Reference 11 - 0.02% Coverage

Definitely yes

Reference 12 - 0.12% Coverage

They have a detailed oriented style that keeps them into such matters.

Matter four

<Internals\\Interviews Transcripts> - § 18 references coded [8.76% Coverage]

Reference 1 - 0.24% Coverage

If you mean by management the top management or the executive level, they don't involve too much into the tools and processes that we use.

Reference 2 - 0.66% Coverage

1. Being Unidimensional. We notice that many of them takes you in one way, while we need flexibility in dealing with different directions. Our medium and small-scale projects need frameworks that merge more than one direction together. It is not only innovation that we need to concentrate on, not only portfolio management, maybe we need them all together especially for smaller projects.

Reference 3 - 0.35% Coverage

Other frameworks are either designed for very big teams and deal with wide scales and long-term objectives or designed for very small processes. Something in between is what could be the most suitable for us.

Reference 4 - 0.36% Coverage

I would recommend using it under certain conditions. It depends on the framework itself. Some frameworks help a lot and make your work much better, yet others might hinder your work instead of facilitating it.

Reference 5 - 1.04% Coverage

I don't think they avoid using it, I think they just do not find the right one for their needs. Most of today's projects that are requested by customers take the form of agile projects that require flexibility, simplicity and quickness.

1. For such cases, no one will choose to have a complexed framework that Includes too much features and requires too much time. On the contrary, they do not want to deal as well with a very general framework that add nothing to the process. Again, the integration of more than one thing into a simple form is considered to be a balanced solution that is needed in the market.

Reference 6 - 0.54% Coverage

Not for now. Some previous managers preferred using some frameworks, but I did not find it that helpful in my projects, so I decided not to. I am not against using it, but I didn't find what suits me hundred % or at least eighty %. At the end of the day I do not want to waste my time and my team's time.

Reference 7 - 0.57% Coverage

Not really. They are concerned more into end results and final outcomes. The most important thing for them is the sales rate and customer satisfaction. They would not object if we start using a good framework, but unlikely that they will ask for using it or even for changing out approach. It is something that we as a team decide on.

Reference 8 - 0.12% Coverage

Maybe they find most of the frameworks deal with one specific concept.

Reference 9 - 0.45% Coverage

Project management is the core of our work, innovation management is essential to our projects' success, and portfolio management is something we need to adapt with. So, I do not want to deal with three frameworks each alone. That's one of the major obstacles.

Reference 10 - 0.49% Coverage

Neutral. I neither recommend in general nor dis-recommend in general. It always has to do with nature of the framework. How it is going to help me? Why do I need to use it? What phases shall I complete with it? I think the answers of all these determine whether it is good to use it or no.

Reference 11 - 0.66% Coverage

I wouldn't say we are relying on any framework although we make use of some of them in rare projects within specific phases. But it is not a frequent case for us. My team suggests from time to time trying some frameworks but again I am not satisfied with what is currently used in the market. Most of them are theoretical and could be used the best in the university's labs and classes.

Reference 12 - 0.47% Coverage

Many of them are of a rigid nature and they are not easy to modify or even slightly adjust. This fact makes these frameworks a bit solid and inflexible for us as project managers. I believe this is an important reason that has relation to the final results of the processes.

Reference 13 - 0.43% Coverage

Yes and no. I mean we designed something, but it is not at the level of a complete framework or full model. It is more like a method that helps ensure facilitation and simplicity among our processes. We use it for some phases of a project and not always.

Reference 14 - 0.73% Coverage

One of the main things might be the need for agility which is something not supported in many frameworks. Another thing might be the weak engagement of wide range of teams inside the company. A framework that brings more than one department or division together for the sake of negotiations and discussions is essential for businesses. The framework that requires only one unique team or individual lacks an important factor.

Reference 15 - 0.59% Coverage

Rarely we do. It is not something we use on daily basis. I wish we had something we can all rely on, but we are not there yet. I am still more into flexibility when it comes to management approach. I follow up with my team on results rather than approaches. We are surviving this way although I believe it is time to streamline all of our processes.

Reference 16 - 0.47% Coverage

In our company I don't feel the insistency on this matter. It is rarely discussed as the managerial style for our management is so flexible and thus it is more open for the project manager to choose how to deal with their projects and situations depending on the circumstances.

Reference 17 - 0.19% Coverage

What these companies need is something direct to the point, a solution that tackles the problem and nothing else.

Reference 18 - 0.40% Coverage

Sometimes we double check our work by applying it to certain frameworks. So yes, sometimes and no, sometimes. Looking into what exists nowadays in the market we see a lack of a reliable framework that could fit the best in our industry.